BALL (B.)

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THE MORPHINE HABIT, (MORPHINOMANIA).

BY

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THE MORPHINE HABIT,

(MORPHINOMANIA).

WITH FOUR LECTURES ON THE BORDER-LAND OF INSANITY; CEREBRAL DUALISM; PROLONGED DREAMS; INSANITY IN TWINS.

By Professor B. BALL, M.D.,

OF THE PARIS FACULTY OF MEDICINE.

Translated from the French for the Humboldt Library.

AUTHOR'S NOTE.

Morphinomania is so wide-spread through Western Europe, and particularly in France, that I have judged it useful to reproduce, in a form accessible to the public, the lectures on that subject delivered by me at the Clinic of Mental Diseases.

I append four other Lectures, which seem to me to be of a nature to interest those who willingly lend their attention to Morbid Psychology.

B. Ball.

Paris, *January* 1, 1885.

I. MORPHINOMANIA: GENERAL DESCRIPTION. — EFFECTS OF THE ABUSE OF MORPHINE.

Among the mental derangements of toxic origin which play so important a part in mental medicine, there is one which merits particular attention, not only on account of its interest from a scientific point of view, but also on account of its increasing frequency during the past few years: I refer to *morphinomania*. Poisons in general may be divided into two distinct classes. Some of them are met in sundry industrial occupations, as lead, mercury, carbon sulphide; others, such as alcohol, opium, and hasheesh, are sought for their own sake on account of the pleasure which they afford.

The abuse of morphine, which within a few years has assumed great proportions, is, as a rule, limited to the upper classes; this is why morphinomania is so rare in our hospitals. But of late the vice has begun to show itself among the working-people,* and I have collected from our wards three interesting cases, which will serve as a starting-point for the studies which we are about to undertake.

It is certain that opium has been employed since the most remote epoch in the East, to produce an agreeable intoxication. Some most celebrated men have submitted to its influence. The Sultan Baber, the Mogul conqueror of India, dwells with complacency, in his memoirs, on the *madjûms* he was wont to take from time to time, toward the end of his career, and which afforded him many a moment of delightful enjoy-

* Landowski thinks that this vice is more common in Germany than in France. From our own personal experience we are inclined to give France the first place.

ment. To-day this poison holds under its sway hundreds of millions of men. After having penetrated Turkey, it threatens to invade Europe. At Constantinople, there exist special houses for this kind of debauch. The use of opium was with difficulty acclimatized in France, but in England and America it has many victims. It is not so among us. True, in looking back to the time when I was a hospital *interne*, I remember a woman at La Salpêtrière who took 60 grams of laudanum daily; and it would be easy to report other cases of a similar abuse. But these are only isolated cases. In fact, up to the present time opium-eating has never taken root in France. But with morphine we enter a new phase.

An old and time-honored custom gives to each new disease the name of the author who *created* it, that is to say, of the one who first gave a complete description of it. We have thus Addison's disease, Bright's disease, Basedow's disease, and we might easily cite other examples.

But of morphinomania it is the literal truth to say that it was a physician who created it. The use of morphine in hypodermic injections was introduced by Wood, who in habituating patients to this treatment actually created the abuse, which has ended by degenerating into a disease. And the new method has spread rapidly; but while it has rendered inestimable service, it has certainly produced a disease which before did not exist. Almost always the morphinomaniac begins by using the injections as a means of relief from pain, discomfort, grief, or other neuropathic conditions.

It is first necessary to distinguish between morphinism and morphinomania.* By morphinism must be understood, the sum of the effects produced by prolonged abuse of morphine. Morphiamania is with respect to opium what dipsomania is with respect to alcohol. There is morphiamania when the person feels the irresistible need of taking morphine. It is thus an independent disease having its own characteristics; but just as dipsomania leads to alcoholism, so morphiamania leads inevitably to morphinism.

There is, however, a very great difference. Dipsomania is an intermittent neurosis; the longing for drink does not exist continually in the dipsomaniac, and his disease is almost absolutely incurable, as are the greater number of nervous diseases in which the attacks recur at intervals. Morphiamania is, on the other hand, a continuous neurosis; those suffering from it have constant need of their stimulant, and for this very reason it is curable and often is cured. Hence it is that confirmed drunkards, who are drunk every day of their lives, may be cured; the dipsomaniac never.

Before entering the heart of the question we must look into and resolve some problems which are found upon its borders.

First, why do our patients so often become addicted to morphine? It is because morphine allays not only physical pain, but also mental sufferings, moral neuralgia; after an injection of morphine, troubles disappear to give place to a calm filled with pleasure. In the famous soliloquy of Hamlet the prince declares that were it not for the fear of the unknown, no man would hesitate to free himself from the troubles of life, when "a bare bodkin" would suffice to bring repose. Well, this "bare bodkin" we have in the Pravaz syringe. With one prick of the Pravaz syringe one is made quite insensible to

> The heart-ache, and the thousand natural shocks
> That flesh is heir to. * * *
> * * * * * * * * *
> Th' oppressor's wrong, the proud man's contumely,
> The pangs of despis'd love.

Look now at another point, no less curious. Why do the morphinoma-

* Levinstein rightly distinguishes *morphinism*, which is a chronic poisoning by morphine, from *morphinomania*, which is a morbid craving for the poison.

niacs, unlike the opium-eaters, take the morphine hypodermically? The answer is easy.

In the first place the taste of opium and its derivatives is acrid, bitter and nauseous. No doubt the opium-eaters, who take that drug in the form of pellets, which they themselves roll, are able, from long use of it, to take it without disgust; but the Orientals generally prefer to smoke it, as under this form the effects of the opium are less immediately injurious.

The morphinomaniac, on the contrary, becomes intoxicated by subcutaneous absorption; he thus avoids the disagreeable flavor of the substance which he uses, and this is perhaps one of the first motives which make him prefer hypodermic injections. Alcoholic subjects, on the contrary, join to the pleasures of intoxication, the agreeable sensations which the taste of liquor affords them, because it is not without a certain pleasure that one renders homage to good wines and perfumed liquors. Here, in short, the palate often plays an important part; it is never thus with the opium habituate. The difference is at once seen between these two vices, which in other respects are much alike.

In the second place, morphine taken through the mouth has a direct action upon the stomach, much more so than when administered subcutaneously, causing loss of appetite, feeling of heaviness in the epigastric region, nausea and even vomiting.

Besides, morphine, when it is taken into the stomach, requires much more time to produce its effect; it is no longer the rapid and ineffable solace of which we have just spoken. With the injection, on the contrary, the sense of relief is instantly felt by the patient, without any disturbance of the digestive organs, nor, to a certain extent, of the intellectual faculties.

Then there is one last reason why the patient makes use of the injections: it is that he feels an eager pleasure in making the punctures. Some patients actually delight in practicing this operation upon themselves, in spite of the sharp pain which it occasions: several of them have assured me that if they must needs reduce the dose, they would prefer infinitely to take it in several injections rather than in one. It is thus that the morphinomaniac, repeating incessantly these pricks of the needle, soon reaches the point of taking doses the very thought of which would make us recoil with horror.

I would call your attention to a fact of great importance in practice, namely, that injections of a weak solution are painful, while those of a concentrated solution are not. A 1-50 solution causes less pain than a 1-100 solution, while one of 1-20 produces no painful sensation.

All patients who use injections of morphine know this, hence they prefer concentrated solutions; the physician should not ignore this fact, because it is also one cause for the rapid increase of doses. We have now reached the heart of our subject. I am going to consider successively:—

1st. The effects of the abuse of morphine;

2d. The effects of abstinence;

3d. The treatment.

EFFECTS OF THE ABUSE OF MORPHINE.

A patient begins to make the punctures himself. The first effects of the absorption of the poison are usually agreeable; no injurious results are at first felt. This period may last weeks, months, or even years. But the blow has been struck, the evil is done, the patient can no longer do without his poison.*

I would in the first place remark that there are differences between individuals not only as regards tolerance of the drug, but also as regards the formation of the habit. Some persons fall almost immediately to the bottom

* Some authors say that persons predisposed to become morphinomaniacs feel from the beginning the need of incessantly renewing the punctures. This is the sign, by which we recognize the predestined habituates.

of the precipice; others hold back upon the brink for some time.

This premised, we will study successively the symptoms which the morphinomaniac offers, still keeping in mind the fact that the picture is never complete in practice, and that each one of the phenomena which I describe to you may be lacking in isolated cases.

As I have already said, a feeling of satisfaction, of felicity, is the first effect of the injection, which does not produce sleep, but on the contrary a kind of awakening of the mind. Almost every one takes some kind of stimulant, wine, alcohol, coffee or tea, to tone up the physical powers and quicken the mental faculties; but morphine is often preferred to all of these by persons whose occupation is of an intellectual character.

It has its victims among our savants: we find morphinomaniacs among literary men, among mathematicians, but above all the physician is exposed to the danger of contracting this fatal habit. There is in his case a predisposition which might well be called professional. Often his abuse of the drug is deeply hidden from view, thanks to the care which the patient takes, but if the truth could be known one would be astonished to learn how many eminent men are victims of morphine, although nothing betrays to the eyes of the public the hidden vice to which they are addicted.

The normal state of the morphinomaniac may be given in a few words: the will is paralyzed and the personal consciousness is benumbed. This state, which is so often found among the insane, and especially among those who are suffering from chronic alcoholism, is the characteristic feature of the disease we are now considering.

The morphinomaniac has not enough energy to throw off this torpor, to break from his habit and take hold again of his duties; often he has not even force enough to leave his bed; hence that *mania lectuaria* so frequent among patients of this class.

But in this disordered and enfeebled condition of the will-power what becomes of the intellectual faculties?

The memory and judgment do not seem to be seriously affected; sometimes their contours only are dimmed and their angular outlines softened, nothing more; in fact, as I have just said, morphine, far from destroying the mental capacity is often a necessary stimulant for certain workers, whose intellectual faculties it excites rather than weakens.

Besides this lessening of will-power, we find a remarkable weakening of the moral sense, sometimes leading to crime. One of the most remarkable cases of this kind is that of Dr. Lamson, who was executed in England a few years ago for having poisoned his brother-in-law. Lamson was a man of eccentric character, who treated all his patients with vegetable alkaloids, administered by hypodermic injection. The many oddities of his conduct had driven every one from him and he had fallen into straitened circumstances, in fact, was very poor.

He had married a young woman, whose brother was very rich. One day he visited his brother-in-law, showed him some medicinal capsules, persuaded him to swallow one and went away immediately after. Ten minutes later the young man died. The medical expert had no difficulty in showing at the *post mortem* that death had been caused by aconite poisoning.

In the mean time Lamson had started for Paris. When he heard that the officers of the law were in search of him, he came and gave himself up. He was put in prison, and made a confession of his crime. But Lamson maintained that he was in the habit of taking morphine, and that the poison had caused a derangement of his moral sense. His plea found no favor, and he was hanged. Yet consider the behavior of the culprit: not only had he taken no precaution to hide his crime; not only had he administered before witnesses a poison the effects of which

were immediately manifested; but more than that, at the moment when he might have considered himself to be, comparatively at least, in safety, since he had left England, he returned of his own accord to give himself up to the English police, on learning that they were in pursuit of him. Were not these the actions of an insane man? In my opinion morphine was the true author of the crime for which he was hanged.

Another example: The Chinese add to the passion for opium the passion for play; so that when they have lost all their money they wager their clothes, their wives, their children; and when they are completely ruined they wager their fingers, which they cut off on the edge of the table with a chopping-knife if luck goes against them. Is not this a new proof of the moral and physical anæsthesia, of the profound impassibility so readily produced by opium and its derivatives? Another sort of moral perversion still more frequent among morphinomaniacs, is mendacity. They are shameless liars, above all upon the question of their vicious habits. Neither physician, relative nor attendant can ever rely upon their word. They continue their abuse of the drug, all the time protesting that they have completely abandoned it; and even if they timidly admit using the poison they prevaricate almost always about the dose. It is thus always to the physical phenomena that the physician must look in order to determine the condition of his patient; the information he may get from the latter is absolutely valueless.

But there are other still more manifest disturbances of the intellectual faculties which point directly toward insanity. In fact, a peculiar kind of insanity is often developed in these patients, of which we will sketch the principal features.

The mental derangement produced by morphine most commonly assumes the form of melancholia with hallucinations, and especially hallucinations of the sense of sight. This is usually the case with toxic agents of any kind. At the same time other sensorial disturbances may be present; often the patient is annoyed by fetid odors, accompanied by disagreeable tastes. Perhaps these are not always true hallucinations, for the abuse of opium, and of almost all other narcotics, produces nauseating effects which have nothing imaginary about them, and which rest upon a perfectly real foundation.

Co-existent with the hallucinations of sight, we find, perhaps, an hallucination of dread not unlike the delirium tremens of alcoholics. Certain it is, that aside from all sensorial illusions there exists among many morphinomaniacs a state of *latent* dread, so to speak, which only needs an occasion to manifest itself. "It seems to me always," said a man in the habit of using morphine, "as if some great misfortune were about to befall me."

But the intellectual disturbances sometimes take an entirely different direction, and instead of melancholia, instead of depression and sadness, we find a condition which resembles acute mania. In the "dram-shops," if I may so express myself, of the far East, one often sees a Malay intoxicated by opium, and overcome by a paroxysm of fury, from having lost his money at gambling, rush into the street, knife in hand, and kill the first passer-by whom he encounters.

This is no doubt the reason why, in the Turkish army, the *delhis* (madmen), who always formed the advance-guard, were allowed to become intoxicated with opium before rushing upon the enemy. Wild with fury, insensible to blows, they formed a body all the more formidable, because impelled, so to speak, by an automatic force. We find here some of the characteristics of the Berserkers of Scandinavian legends.

The use of opium is habitual to such an extent among the Chinese soldiery, that the Black Flags employed by the kingdom of Annam receive, as

their monthly pay, not only money and food, but also a ration of opium. It is the equivalent of the coffee ration sometimes given to our troops.

We must now notice some other cerebral disturbances produced by the abuse of morphine. Vertigo is very frequent; then comes insomnia. Morphine does not bring sleep to its votaries; on the contrary, by over-exciting the organs of thought, it causes them to pass many wakeful nights. Many a morphinomaniac passes all his nights in reading; during the day he is drowsy after the manner of old people, and falls asleep on sitting down. But these naps do not last long, and on the whole the morphinomaniac is far from getting the rest necessary for a person in normal health.

The sense of touch is usually impaired or perverted. In most cases there is anæsthesia, and this loss of sensibility accounts for the facility with which morphinomaniacs make the punctures themselves. Sometimes we see hyperæsthesia and neuralgia, but these effects are more likely to be produced by abstinence.

Among the most paradoxical consequences of the hypodermic use of morphine, must be mentioned the re-establishment of cutaneous sensibility in those who have lost it. Here is a striking instance of this: A young hysteric in my care had completely lost the tactile sense not only upon the skin, but also on the mucous surfaces. The inside of her mouth was absolutely anæsthetic, and the patient did not know when her tongue touched her teeth, but on the other hand she suffered from extreme visceralgia. Hypodermic injections of morphine were given her; she soon reached a dose of eight centigrams a day, and under this treatment all the pains disappeared and normal sensibility was restored.

Since that time she has become a slave to the habit; she can no longer do without morphine; but in every other respect her health is perfect; she enjoys an excellent appetite, and takes long walks without the least fatigue.

The disturbance of the tactile sense may be accompanied by other sensorial disorders; of all the special senses sight is the one which is oftenest affected. Among these patients are found cases of amblyopy and sometimes amaurosis, just as among those who have abused tobacco.

The reflex actions are weakened, sometimes entirely lost. those of the tendons being the ones which most frequently disappear.

In one of our patients they were completely lost, and in spite of the improvement made by the patient they have not yet reappeared.

Though the reflex actions are suppressed or impaired, paralysis, on the contrary, is very rare; it is abstinence above all which seems to produce that effect.

But upon the digestive organs morphine exercises a most unexpected effect. Administered by hypodermic injections, it develops an appetite and sometimes even produces boulimia. In the case of the young hysteric of whom I have already spoken, a complete anorexy was cured by the use of morphine; now, thanks to that habit, she has a very regular appetite.

The contrary takes place when the opium or morphine introduced by the mouth is brought into contact with the gastric mucous membrane. Then nausea, and even vomiting are the result. There is, above all, an almost absolute loss of appetite, which renders alimentation very difficult. Hence it is that morphinomaniacs, in this differing from opium-eaters, can with comparative impunity indulge in their favorite vice.

There are, however, some individuals in whom hypodermic injections of morphine bring on nausea and vomiting, but these never become morphinomaniacs; they are saved from the vice by a natural repugnance to it.

Upon the bowels the poison has a paralyzing effect; in the greater

number of these patients there is a very obstinate constipation, often accompanied—strange contradiction—by tenesmus and griping. Abstinence, on the contrary, brings on diarrhea.

To constipation may be added dysuria. Many patients can only micturate drop by drop, and with very severe pain.

But gravest among the disorders produced by the abuse of morphine, are those of respiration and circulation. The pulse is intermittent, the cardiac impulsion is weakened, there is dyspnœa with hoarseness. But far more frequently these disorders are the result of abstinence.

Finally there are cases where the patient suffers from real attacks of intermittent fever, returning periodically under the form of regular relapses.

The general nutrition suffers also from this fatal influence. The ill effects of this can be expressed in one word—the morphinomaniac *ages*; he ages rapidly. Women who use morphine to excess ought to take note of this fact. Nothing will so surely mar a pretty face as the abuse of this poison. The eyes lose their brightness; the face becomes a dead mask without expression; the skin becomes yellow and soon takes an earthy tint; and then premature wrinkles complete the picture.

One of the most remarkable consequences of the hypodermic injection of morphine is the thickening of the skin. This is why the patients use up their needles so rapidly, and are constantly obliged to renew them. The points become blunt, and can no longer pierce the thickened skin.

Morphinomaniacs are subject to local troubles of all kinds; the arms of some subjects resemble a skimmer; the skin hardened, red and tumefied, retains the marks of the daily puncture with which it is studded. But before reaching that point, the patients will perhaps notice the formation of hardened tubercules, abscesses, tumors and even more serious results. I have had a woman die, while under my care, suffering from locomotor ataxia; she had made improper use of the punctures. An inflammation developed around one of the points, resulting in the formation of a deep tumor from which the patient died.

Indeed, surgical lesions are a very serious matter in the case of morphinomaniacs, who, in this respect, resemble diabetics, and this is not only a surface resemblance, for often the urine of the victim of morphine contains sugar or albumen.

Finally the abuse of morphine disturbs the genital functions, and leads to amenorrhœa, to impotence, to abortion.

What is the final result? The morphinomaniac probably dies from the poison. Death may be sudden, many a one, in fact, injects by mistake a fatal dose, which causes death at once. But when the patient withstands the direct toxic effect, he falls gradually into a decline, and dies of consumption, unless some incidental disease, sometimes slight, comes to carry him off. Nephritis is one of the diseases which most frequently end their existence.

Acute affections of the respiratory organs, bronchitis, and above all pneumonia, are exceptionally serious among the greater number of these subjects.

Their life is thus threatened at every turn, and yet there are a privileged few, who seem to escape in a measure the consequences of their evil habit. They sometimes live to an advanced age, but always with impaired health and diminished powers.

Many morphinomaniacs struggle against the evil, try to renounce their habit, and put themselves in a physician's hands. They are right, because though dipsomania is incurable, morphinomania may be cured. They are then submitted to a regular treatment, of which the first condition is to quit the use of the poison; or at least diminish the dose; and then are

manifested the effects of abstinence, which will form the subject of our next lecture.

II. MORPHINOMANIA: EFFECTS OF ABSTINENCE FROM MORPHINE.

In the preceding lecture I pointed out the effects of the abuse of morphine. I especially called your attention to the mental and moral consequences of this habit. I then brought before you the physical effects of morphinism; its influence upon sensibility and motility, upon the digestive functions and general nutrition. Above all, I sought to show how this stimulant, morphine, little by little, so to speak, takes the place of the organic functions; hence the fatal effects of abstinence, of which I wish now to speak.

Among the poisons which produce mental derangement, two very different classes are to be distinguished, as regards the results that follow their suppression. There are some agents, such as lead, which have a disastrous and deleterious effect upon the entire system, and which affect all the organs; but as their action is accompanied by no pleasure, so their suppression leads to no discomfort: they are simply hurtful. Suppress carbon sulphide in an individual poisoned by it, and you will see all its effects cease, at least unless the poison has become permanently lodged in the system. The same is true of mercury and lead. It is quite another thing with regard to those poisons which a man seeks, only for the sake of pleasure: they become for most people indispensable to their existence. They so modify and change all of the functions that their continued use becomes a necessity; the patient deprived of their support is like a ship stranded on the beach waiting for the incoming tide to set it afloat again. In this class of toxic agents I might name, besides morphine, alcohol, and in the same order of ideas, coffee, tea, tobacco and hasheesh. There are persons who cannot do without these stimulants once they have become accustomed to them; these are veritable dipsomaniacs. I remember once meeting upon the boulevard, a man who approached me, saying, "Sir, I am in utter misery. I had no dinner yesterday; I shall have none to-day; but what is worst of all, I have no tobacco and I cannot live without smoking."

Among the poisons belonging to this category, opium and its alkaloid morphine take the first place.

The effects of abstinence are most clearly seen in those subjects who, having decided to break loose from their fatal habit, submit themselves in good faith to systematic treatment. Of course the same effects are found in those, who, from circumstances independent of their own will, are suddenly deprived of their usual stimulant. This is what happens to the unfortunate morphinomaniac who has broken his syringe, or who gets into jail, or again who finds himself reduced to poverty, and without the means of continuing his usual practice. The woman mentioned in the former lecture came to us in a condition of terrible over-excitement: for several days she had had no money with which to procure morphine.

Among the phenomena which result from its suppression, there are some which are diametrically opposite to those brought on by the abuse. Thus diarrhea is one of the consequences of abstinence, while constipation is habitual in those abandoned to the use of morphine. But it also happens, that following the suppression of the poisonous agent, phenomena appear, identical with those brought on by the abuse, and it is not only with morphine that this is seen, but also with all the poisons belonging to the same category. The abuse of alcohol produces tremor; the deprivation of it brings on a more pronounced tremor, and the drunk-

ard, who is tremulous upon waking in the morning, finds that his tremor disappears after his first libation. At first morphinomania was treated by the sudden and total suppression of the poison: then it was that physicians were able to observe, in full intensity, the phenomena now to be considered.

I have described the appearance of patients when under the influence of morphine; they have a dull eye and an expressionless face. In the state of abstinence, on the contrary, the face of the patient is always animated and flushed, and the predominant symptoms are those of excitation and congestion. And yet, in other persons an almost death-like pallor is seen, as if life had been taken from them with their poison.

I bring before your notice one of the patients already mentioned in the first lecture. Since yesterday, she has had no morphine. Her facial expression is striking. Her face is as a mask, sight is gone, she is blind and almost without hearing; she has the appearance of death; intelligence almost extinct; she can no longer stand upon her feet.

I give her a hypodermic injection of a few centigrams. In an instant her face expresses delight, her strength returns, her mind awakens, she sees, speaks and hears.

Such are the usual effects produced by the injection after a long abstinence.

But let us analyze these phenomena.

The *euphoria*, the sensation of general well-being, of indefinable beatitude which the morphinomaniac feels, and which causes him to see everything under its most pleasing aspect, disappears. This is soon succeeded by a state of disquiet, of uneasiness, sometimes of agitation, which usually makes its appearance about the time when the patient has been wont to take his injection. The morphinomaniac deprived of his stimulant becomes irritable and querulous; he is inclined to criticise everything, to look at the darkest side of everything, in a word he becomes insufferable. At Constantinople, the set phrase, in speaking of a disagreeable man is, "He is a theriac deprived of his opium."

A vague sense of discomfort is the first result of abstinence. But a train of other phenomena soon appears. Often a morphinomaniac fairly breaks down when deprived of his usual stimulant; his intellectual faculties weaken and all serious work becomes impossible to him. As Zambaco remarks, the more intense the intellectual effort required the more the need of morphine is felt. A certain politician holding an important office, and accustomed to use morphine, took care on the days when the ministers met to carry his syringe in his pocket so that he might have his injection.

As I have already said, morphine serves as a stimulant to the intellect; it helps the mathematician to resolve his problems, and the poet in his search for the ideal. On the contrary, in the morphinomaniac deprived of his poison is produced a moral hyperæsthesia sometimes carried to a very high degree, a peculiar morbid sensibility. This was the case with a physician of my acquaintance, a hardened morphinomaniac, who, when he happened to be deprived of his stimulant, would weep over the sufferings of the patients who came to consult him, and to whose complaints he could not listen without being deeply affected.

The immoderate use of morphine produces insomnia: the deprivation of it on the contrary leads to a heavy deep sleep, from which the patient is with difficulty aroused. The *Mania Lectuaria*, which I have already spoken of as one of the effects of the abuse of morphine, is found in its highest degree in the abstainer. A morphinomaniac once said to me: "On waking, I cannot see; I cannot hear; I grope about for my syringe, and it is only when I have found it and used it, that I can rise from my bed."

The picture which I have just drawn is that of depression, but the absence of the stimulant may lead to very different results.

Some patients in the first days of their abstinence are extremely agitated: they keep walking up and down, and cannot remain in one place; they cry and groan, wearying every one with their tiresome lamentations. In a higher degree of excitation they give evidence of numerous hallucinations which, as in all mental derangements of toxic origin, bear principally upon the sight; they see human faces, some smiling, some menacing; they see lights, flames, halos. They may also have hallucinations of the sense of smell and of taste, but delusions of hearing are more rarely met with.

To all these symptoms must be added insomnia, a natural result of the deprivation of their customary medicament. This assertion may seem paradoxical because I have just said that the deprivation of morphine induces somnolence; but it must be remembered that the effects of abstinence follow two opposite directions; on one side they resemble the effects of the abuse, on the other they offer a most striking contrast to the usual effects of the poison. This is why the deprivation of morphine produces, now somnolence, again, insomnia.

These disturbances do not yet amount to mania, but in certain subjects that state may supervene; a very acute form of violent frenzy is then manifested. But the incoherence which characterizes the true maniac is not found. Often the patients have fixed ideas, and true intellectual obsessions. Among many of them, a tendency to suicide is found, which necessitates a strict and rigorous surveillance.

Besides this frenzy, there is a mental aberration which we must notice: namely, the tendency of the patient to lie (already mentioned among the effects of the abuse), especially to lie about his habit of using morphine.

If he has had a relapse, if he has fallen back, be it only once into his pet vice, he will lie in the boldest way, calling upon heaven and earth to witness his sincerity. Often it is enough to search the patient to convict him of barefaced lying; even at the moment when he declares his innocence, he will have a stock of morphine about him.

Let us now pass to the disturbances of sensibility. They are numerous and varied, but almost always assume the form of hyperæsthesia rather than of anæsthesia.

The patient often has headaches; he has creeping sensations; sometimes he has true neuralgic pains; finally his old aches return, and the sufferings which had driven him into the abuse of morphine, regain their control.

With regard to the special senses, troubles of the visual organs are often found, as diplopia and especially very defective accommodation. These disturbances are not connected with any material affection of the retina; they result almost always from an accommodative asthenopy. A single injection suffices to restore tonicity to the muscles, and the sight regains its original acuteness.

The other special senses may likewise suffer a momentary impairment, but in a much less degree than the sight. An exception must be made with regard to the genital sense.

But as a result of that contradiction which we have so often spoken of, phenomena of hyperæsthesia,—an abnormal excitability of all the senses with an exaggeration of the reflex actions—are most frequently met with. The least noise makes the patient start; the slightest touch makes him jump. Another curious detail is that the patients often sneeze violently, the result of exaggerated reflex action.

Disturbances of motility are much less frequent. However, some patients complain of a great feeling of weakness: to walk is difficult; movement is irksome. Often there is tremor, as in poisoning by alcohol or by

lead. Carried to a certain degree, this effect becomes a sort of chorea, and some patients beat a regular tattoo on the floor with their feet.

There are other nervous disturbances, which in appearance, at least, are of a much more serious nature. In certain subjects are found epileptiform phenomena—sometimes simple loss of consciousness; sometimes real convulsive paroxysms.

Such symptoms are, no doubt, alarming, but there is a much more formidable group of symptoms, and this is *delirium tremens*. It occurs in those whom it attacks, seven or eight hours after the suppression of morphine. The tremor is accompanied by a violent frenzy, with intense agitation, and extreme fury. The subject tries to smash everything; he becomes aggressive, and is really dangerous. To these different troubles are added hallucinations, principally of sight; they are accompanied by a feeling of terror, and by profuse perspiration. This condition, if allowed to take its course, seldom lasts more than forty-eight hours, but it is immediately calmed if one wishes to check it, by an hypodermic injection of morphine.

Then come disorders of the digestive system; many patients suffer greatly from dyspepsia; also from nausea and vomiting, while others, on the contrary, have a ravenous appetite. These symptoms are not constant, but diarrhea is always to be expected; when, by chance, it does not appear, the patient must be mistrusted, he is deceiving his physician, and still taking morphine. As associated phenomena we notice thirst, an immediate result of diarrhea and anal tenesmus which so often accompanies it.

The skin shares in the derangement of the system. There is congestion in the head, and flushed face. Some subjects have nettle-rash, almost all exhibit profuse perspiration. To these signs must be added a marked lowering of the temperature (as proved by the thermometer) accompanied by chills.

The sexual functions are among those which show the greatest disturbance. But following the general rule that hyperæsthesia predominates in the morphinomaniac in a state of abstinence, these functions present a manifest over-excitation. Usually, the morphinomaniac finds his passions quenched, or at least weakened; sometimes he even becomes impotent. The opposite takes place as the effect of abstinence, and sometimes there are manifestations of an exaggerated erotism; this perturbation is most frequent among women. The menses, for a long time suppressed, reappear; in men, neuralgia of the testicles is often found.

With regard to the urinary secretion, we often find in it evidence of glycosuria, and oftener still of albuminuria. This is more frequent in the state of abstinence than during the abuse of morphine.

The respiration is greatly disordered, and most patients exhibit the symptoms of dyspnœa, and above all irregularity in the respiratory rhythm. Others suffer from asthma. In less pronounced cases there is a cough or a stitch in the side.

Finally, the circulation becomes weaker, the patient has palpitation of the heart, the pulse slackens and becomes feeble.

These various symptoms acquire an exceptional gravity in *collapse*. In some cases at the end of two or three days, a feeling of weakness is developed, which certainly is not, as Levinstein thinks, owing to the lack of nourishment, but rather to the suppression of the habitual stimulant. But the weakness develops and increases, the heart suffers in its turn, the pulse grows feeble, becomes irregular, slackens, falling to 30 or 40 pulsations a minute, and finally is quite imperceptible.

At the same time respiration stops, and the skin becomes cold, and covered with a cold sweat. The

patient falls into a state of syncope; the eyes are sunken, and the facial muscles set; we see every appearance of death, and sometimes the reality, for frequently the patient dies in this condition.

Usually these phenomena are developed gradually, giving the physician time to interfere, but they may occur suddenly, and then they resemble the effects of acute poisoning by morphine.

The gravity of such a condition can not be too much emphasized. There lies, undoubtedly, the most serious objection which can be brought against the practice however inevitable, of requiring of the patient abstinence. But this is a question which we will discuss in connection with the treatment.

Where the daily allowance of morphine is diminished, instead of being completely withheld, phenomena resembling those produced by entire abstinence appear, but with less intensity. The effects vary according to the temperament of the patients. Some morphinomaniacs are in this respect regular instruments of precision, and when an attempt is made to administer to them solutions diluted with water, though they may have known nothing of the dilution, they at once detect it, first by the pain which follows the puncture, then by the discomfort they feel, or rather by the absence of the relief which they expected. Some patients perceive immediately the reduction of half a centigram in their usual dose.

Here I must insert a remark parenthetically. It is important to know that with an opium-eater or a morphinomaniac, attacked by a disease which should be treated by opium, first his usual ration must be given to the patient and then the requisite medicinal dose. If, for example, the patient is in the habit of taking 5 centigrams of morphine a day, 7 or 8 must be given to produce the effect of 2 or 3 centigrams upon an ordinary person. So a horse that is idle requires only so much food as is necessary to keep him alive; but if he works, he must have sufficient to keep him alive, plus a supply proportioned to the work required of him.

The effects just noted, whether springing from the abuse of morphine, or from abstinence, are produced much more rapidly in persons suffering from diseases of the urinary organs; this is easily understood, for it is especially by the urinary secretion that morphine is eliminated and leaves the system.

We have till now spoken of those who are morphinomaniacs purely—of those who content themselves with using morphine without adding to it any other excitant, but often the morphinomaniac, in addition to his favorite stimulant, uses various others. Some take coffee, and this practice is approved by Zambaco. But the greater number combine with morphine the use of chloroform, of chloral, and above all, of alcoholic liquors. Many morphinomaniacs, it must be remembered, are at the same time habitual drunkards.

Patients of this class are most liable to experience serious trouble as the result of abstinence; collapse is with them more frequent; they present much more often the phenomena of *delirium tremens*. Their organization is seriously impaired, and their nervous system radically disordered: in such cases the efforts of the physician are absolutely fruitless.

The formidable symptoms which I have just pictured to you are by no means exhibited by all patients. In the first place, as has been justly said, not every one can become a morphinomaniac. Many persons instead of experiencing the ineffable felicity of which I have spoken, take morphine only with repugnance, and are troubled with violent nausea, vertigo, and a narcotism of a very disagreeable kind. Often the discomfort is even greater than the pain which they have sought to ease by the hypodermic injection.

Of course with such patients to abandon the use of morphine pro-

duces only advantages; but subjects of this kind are not, properly speaking, morphinomaniacs. But even among these latter are some who bear without inconvenience the loss of morphine. I have now under my care at the Laënnec Hospital, a young hysterical woman with whom the morphine has been with advantage replaced by subcutaneous injections of distilled water. No bad effect has followed, and the patient enjoys comparatively better health.

It has been asserted that among the insane so often treated (wrongly in my opinion) by heavy doses of morphine, the relinquishment of the habit produces none of the bad effects which are seen in other patients. I believe otherwise, and hold that even lunatics can be made morphinomaniacs, and that they become slaves to the habit, when once acquired.

Still, it is true that in some excitable lunatics, and particularly in cases of acute mania, medicines of whatever kind seem to have no effect. I have given to an excited maniac 20 grams daily of bromide of potassium without producing any appreciable effect, and even without causing the usual eruption. It is very probable that the medicine was not absorbed. This is certainly the case with regard to other medicinal substances, and of morphine in particular. It can be understood from this how the stopping of a medicine which has never, properly speaking, penetrated the system, need not cause any disturbance. This perhaps explains why certain lunatics escape both the effects of very large doses, and also of the sudden suppression of the drug.

III. MORPHINOMANIA: DIAGNOSIS, PROGNOSIS, AND TREATMENT.

In the foregoing lectures I have tried to show the effects of the prolonged action of morphine upon the system. After having pointed out the changes it causes in the mental condition, in the functions of the intellect, and in the moral sense, I dwelt upon the physical disturbances of which it is equally the cause. Finally, I showed you that the suppression of the poison produces another series of phenomena, often quite as serious as the effects of the abuse itself.

It now remains to deduce from the facts the practical consequences to which they lead. I propose, therefore, to study the diagnosis and the prognosis of morphinomania. We will conclude this course of lectures by studying the treatment.

The diagnosis of morphinomania seems, at first sight, to present no difficulties whatever. The patient himself comes to us; he asks the help of the physician; he gives us the details of his case, and his family are ready to fill up any gaps he may have left in the history: nothing remains except to begin the treatment.

Theoretically things happen thus; practically it is otherwise. Most frequently we are deceived by the patient, and often also by his family. In this respect a singular complicity seems to exist between the morphinomaniac and those about him; his mother, sister, wife, friends try to cast a veil over the vice, which they should denounce to the physician, in the interest of the patient. But to those who know the habits of the families of lunatics (and in certain respects morphinomaniacs are like lunatics), these moral contradictions, this foolish conduct do not appear in the least extraordinary.

I will suppose myself in the presence of a person tormented by some unknown ill, or who in the course of an ordinary disease seeks medical assistance.

From the very first one is struck by the strange expression of the physiognomy: the wan complexion, the sunken eyes, the vacant look, are quite in agreement with the general appearance of dullness and listlessness, which betrays clearly enough the

patient's mental state. There exists in fact in these patients a very marked lowering of the physical and moral tone, and I have been able to detect the use of morphine in persons naturally very intelligent by the manifest weakening of their general activity, and by the dullness of their mental faculties. At the same time the functions of nutrition are profoundly affected: the patient complains of loss of appetite, also of obstinate constipation, and the general emaciation corresponds to this condition of things.

These characteristics are doubtless very significant and suffice to awaken just suspicions; but they may be entirely lacking; they may be replaced by the very opposite symptoms.

There are, as we know, morphinomaniacs who retain an appearance of health, who show a tendency to stoutness, who enjoy an excellent, sometimes an excessive, appetite, who are quick of understanding, and of great bodily activity.

The fact is that in those predisposed to it, the stimulation produced by morphine facilitates labor, especially intellectual work, and in the case of habituates work is not even possible except under its influence. To discover the truth then, the patient must be followed and closely watched for a length of time. Long hours must be passed with the subject, and then will be observed those alternations of somnolence and insomnia, of excitation and depression which mark chronic morphinism.

Sometimes the patient, who has appeared stupid, wakes suddenly and shows an unusual agitation, with irritability and pains in the limbs,—that is because the hour for the puncture has arrived; the clock requires winding. Sometimes, on the contrary, the subject falls at that time into a more or less profound sleep, having an irregular pulse and labored breathing.

Again, some patients fall suddenly on the floor, almost in a state of syncope, with loss of consciousness, having allowed the time to pass when they should have had their hypodermic injection.

But what most frequently happens is, that the patient experiences a momentary depression. You are conversing with an intelligent, agreeable, educated man, a lively and entertaining talker. All goes on very well for some hours; but at a given instant his face changes expression showing uneasiness, disquietude. No longer able to resist the craving which possesses him, the patient disappears upon some trivial pretext; some moments after he returns. His face is transformed: animation, satisfaction and gayety have replaced the expression of fatigue and bad humor which had before been read so easily upon his features. He has just made his puncture.

There are other subjects in whom a permanent depression is seen. The axis of their moral activity shows no oscillations: they are in a constant state of sadness, apprehension, or low spirits. With the mental inertia there coëxists a marked condition of muscular weakness; the patient is continually yawning and stretching; it is almost impossible to make him leave the bed.

Here are symptoms which may guide the physician to a diagnosis. But the morphinomaniac who is possessed of any cunning takes precautions against surprise, and he keeps up as well as he can the appearance of intelligence and health, taking care not to let himself be seen at the times when the mask falls, and the truth is exposed in all its nakedness.

There are two means of diagnosis which give the physician absolute certainty: the first is excellent, but the second still better, if practicable.

The first way is to inspect the skin: the marks of repeated punctures, the œdematous condition of the limbs, the eruptions with which they are covered can leave no doubt in the mind of the observer; but to prove the fact, to seize the *corpus*

delicti, permission must be obtained to see the diseased parts. The morphinomaniac will never consent to show them, and it is only by taking the patient by surprise that a glimpse of them can be had. An abscess, perhaps, forms at one of the punctures; this must be opened, and in lancing it the physician discovers that he has to do with a morphinomaniac.

The other method is infinitely to be preferred to this, for it does not require the patient's consent. We know that morphine is eliminated by the urine; it is there, then, that it must be sought, and when it is found we are absolutely certain that the vice exists, because the eliminated morphine must necessarily have been introduced into the system. Hence, in patients under treatment, who are supposed to be practicing abstinence, the presence of this alkaloid in the urine suffices to show that they are deceiving the physician. Doubtless in a morphinomaniac who begins to renounce his habits, there exists a residuum of the alkaloid which takes six or eight or even ten days to pass off, but, if after that period morphine still remains in the urine, it is absolutely certain that the patient continues to use the drug.

We possess in the analysis of the urine a certain means of knowing, in this respect, the real state of things not only in incorrigible patients, but also in those who seek to reclaim themselves.

The diagnosis made, let us see upon what basis we can ground the prognosis in each particular case. First must be asked what becomes of incurable morphinomaniacs, those who, the habit once formed, can never break loose from it. First be it remarked that, very different from hardened alcoholics, morphinomaniacs are almost always obliged to increase progressively their dose. The incorrigible drunkard is generally content with a certain amount of alcohol, which satisfies his wants year after year. The morphinomaniac, on the contrary, is not long in perceiving, that the original dose no longer suffices to produce intoxication, repose, comfort; he therefore injects more and more each time: beginning with a few centigrams, he comes at last, in extreme cases, to take two or three grams.

This steady increase of the quantity of morphine injected, has as an immediate and necessary result, a progressive augmentation of cachexia. The morphinomaniac ages, becomes emaciated, his features are changed, his appetite fails, and his strength declines from day to day. To this steady progression, there is but one termination, death. However, the duration of the morbid evolution varies considerably according to individuals; many a morphinomaniac has lived for years and years, with every appearance of regular health, but finally the day of liquidation comes, and then the end.

In most cases the patients fall into a complete decline, into a profound state of moral and physical cachexia. Sometimes it is some incidental complaint which strikes at the root of life, and which overpowers its victim all the more easily, because for a long time his system has been weakened and undermined by the use of the poison. The victims of morphine often succumb to pulmonary consumption; their tissues form a favorable ground for the development of the disease. Many are carried off by diabetes and albuminuria.

It is not unusual to see a morphinomaniac drop suddenly dead, from stoppage of the heart's action; and some patients die from the effects of an overdose, taken perhaps by accident, perhaps purposely.

Let us now pass to the reformed morphinomaniacs, those who sincerely desire to be cured. They succeed always, or nearly always, in overcoming the habit for a while. The only question then is of a relapse.

The subjects who are most ex-

posed to these vexatious relapses are 1st, alcoholics; 2d, old people; 3d, those exposed to extreme fatigue, or to physical or moral weariness; 4th, subjects accustomed to large doses; 5th, patients who have first used morphine to assuage physical pain, a use which quickly degenerated into abuse. When a patient is subject to the intolerable shooting pains of neuralgia, or the excruciations of ataxia, the privation of morphine causes a return of the attacks and the subject is almost irresistibly tempted to recommence the punctures.

Druggists and physicians, according to a very just remark of Levinstein, are more exposed than others to relapse. They have morphine constantly at hand, and as soon as they feel the inclination for the drug, they can satisfy it. This temptation is almost irresistible to the ex-morphinomaniac, who, in the practice of his profession is called upon to inject his patients. It is like the case of a drunkard giving drink to his friends; he feels an almost irresistible desire to take a little himself.

Since relapses are so frequent and so easy, a prolonged abstinence is necessary to give the patient the right to believe himself entirely cured. The term of one year, fixed by Levinstein, is perhaps too long; we will be content to say that several months of self-control are necessary to place one out of danger; and even then, one injection may put all in doubt again; for as soon as the morphinomaniac is punctured anew, he feels irresistibly tempted to make a second and then a third puncture.

This is why subjects who have considerably reduced their dose of the drug, should not think themselves cured, although they may only take two or three milligrams a day.

It is interesting to notice that the condition of those who have relapsed, as Levinstein observes, is much less agreeable than that of those who have never abandoned the habit. After a long interval of abstinence, the injection of morphine gives less relief, and brings no more the old state of beatitude. The patient experiences marked digestive disturbances, discomfort, insomnia, and prostration.

Let us now see what are the means of treatment which experience suggests. They may be divided into two great systems, that of abrupt suppression, and that of gradual diminution.

Abrupt suppression, recommended by Levinstein, and practiced by a great number of other physicians, has in its favor one great advantage: it causes the patient to suffer for a much shorter time. Once the crisis over, once the frontier crossed, the patient no longer feels the peculiar distress of the morphine dipsomaniac; he no longer has that painful sense of depression and of downheartedness which makes him long for another injection. But, on the other hand, by sudden suppression, we run the risk of producing the serious results already described. The patient may be taken with *delirium tremens;* he may be attacked by acute mania; he may finally (and this is the most serious danger), fall into collapse, which, as I have already observed, is sometimes followed by death.

It is therefore almost impossible to carry through a sudden suppression outside of an asylum or hospital. In fact, immediate sources of assistance are indispensable for the patient during this course of treatment. It is absolutely necessary in some serious cases, to administer morphine subcutaneously, which then causes all ill effects to disappear; but, as may be easily understood, it is impossible to let the patient be the judge of the seasonableness of this puncture. Finally, the hospital is almost an absolute necessity, to save the patient from the strong temptations which he experiences during the first days of his abstention; there are few persons, nay, I will say more, there are none with will powers strong

enough to resist; and in spite of the best intentions in the world, the patients almost always yield to the temptation.

True, by having in attendance upon the morphinomaniac a physician who never leaves him, the inconveniences of home treatment might be obviated; but outside of an asylum or a hospital, the physician rarely has the authority necessary to enforce obedience, as those know, by a sad experience, who have attempted to break up the habits of a patient without inflicting upon him the discomforts of a forced seclusion.

Gradual suppression is an easier mode of treatment to employ; it is even the only treatment possible to try in the patient's home, or outside of special establishments. First, all the necessary precautions must be taken, to be certain that the patient does not baffle the surveillance to which he is subjected; then is to be fixed the rate at which the daily *quantum* is to be reduced. This reduction may proceed at the rate of a centigram, or half a centigram a day, or even less, provided only that, once the treatment is begun, the dose is steadily diminished.

Adjuvants are clearly indicated during the period of suffering, when the patient is being gradually weaned from his usual stimulant.

First, and above all, a tonic and nutritious diet is necessary, and at first the patient should rest in bed, leaving it to take a little exercise at a later period, when the first difficulties have been overcome. Then there are many ways of improving his nerve tone. I by no means disapprove of the use of alcohol in moderate doses; but care must be taken to keep the patient within the strictest bounds, for many morphinomaniacs are delighted with the intoxication of alcohol, provided they can continue in secret their morphine habit. Thus instead of substituting one habit for another, we should be simply developing a new vicious habit in the patient who, in addition to being a victim of morphine, would now become a drunkard.

The Italian proverb, "Un diavolo caccia l'altro,"—(One devil drives out another),—is not applicable here, for as experience teaches us, oftentimes two devils dwell together in the same person, each assisting the other. Hence the use of alcohol is not advisable except for patients placed in some establishment, where the use of it can be watched and the doses regulated.

Next to alcohol comes coffee, which Zambaco recommends, and which certainly counteracts most of the painful effects of suppression.

Hypodermic injections of cafeine may be substituted for morphine injections with considerable advantage. They are of special benefit in subduing neuralgic pains which are so often the starting point of morphinomania.

Hydropathy may also be of great service to patients who have retained sufficient strength to bear that mode of treatment.

Sedatives are also indicated in many cases, especially as insomnia is one of the most direct consequences of the suppression of morphine. We give the first place to the alkaline bromides, but often their action is uncertain: in that case recourse may be had to chloral, administered by the mouth or by enema, in doses of three or four grams a day. But it must be remarked that, at first, this drug will not make the subject sleep: it is only later on that its influence may be felt.

Of late paraldehyde has been recommended in doses of two or three grams for insomnia, and even as a curative of morphinomania.

To relieve the pains formerly subdued by morphine, and which reappear after its suppression, the physician may prescribe belladonna, gelsemium sempervirens, or even the extractum thebaicum, which, tak-

en by the mouth, constitutes a sedative very different in its effects from morphine. Codeine and lactucarium have also sometimes been recommended.

Valerian in its various pharmaceutical forms, may quiet the general nervous excitement.

Baths, and above all prolonged baths, are of benefit with some patients. For insomnia, may be used mustard baths (two kilograms of mustard in a luke-warm bath), care being taken to protect the genital organs from contact with the irritating agent. The patient may be left in the bath for about ten minutes.

Finally, baths of compressed or decompressed air may, in certain cases render important service.

But what the patient requires most of all is mental quietude. He must be placed in an atmosphere of tranquility, whence cares, grief, and all exciting conversation are banished; finally he must be kept under the strictest surveillance.

But it must be admitted that the most efficacious of all remedies is here the hospital. The useful effects of keeping the patient secluded are demonstrated by the fact that the stern rules of prison life have often effected the cure of morphinomaniacs: in jail they are forced, in spite of their protestations, to renounce their habitual vice.

Morphinomania, then, is a curable affection; it is more easily cured than dipsomania, but it is none the less a powerful enough enemy to call forth all our skill to combat it. We must be armed against it with all the means which science furnishes, and never make the slightest concession to it, for the morphinomaniac who argues with his physician, and bargains, so to speak, for his daily dose, is an absolutely lost man; he will never recover, unless force is employed to control him.

Nor must we forget that the habitual duplicity of these patients continually tends to lead the physician into error. A patient who is regarded as cured, keeps up his use of the drug in secret. Hence the most strict surveillance is indispensable.

I would add that the physician ought to use the utmost caution in the use of the hypodermic injection. So easy is it to produce morphinomania, and so difficult to conquer it, once it is produced, that the use of the injection should be absolutely restricted to cases where it is indispensable. I would not deny morphine to the ataxic patient racked with pains beyond endurance, nor to the victim of dyspnœa, when he craves for some assuagement of his agony, nor in cases of neuralgia where the suffering is extreme. But I would be remorseless in denying it to hysteric patients, to hypochondriacs, to neuropathic subjects of every kind, who are continually asking for morphine injections without any real necessity. Above all I take care not to let the patient make the injection himself, nor to put into his hands the means of doing so. It is for the physician alone to perform this operation when it is needed.

Finally, I must condemn, I shall not say the use, but the abuse, of morphine in the case of the insane. This treatment—the advantages of which are but inconsiderable at best—has been carried to such lengths as to become dangerous, not only impairing the health of the patients, but even threatening their lives; sudden death has, in some instances, resulted from it.

It is better to prevent disease than to cure it; and we, who know better than our predecessors the bad effects of morphine injections, must be more guarded in their use than was the generation of physicians who went before us, and whose errors ought to serve for our instruction.

THE BORDER-LAND OF INSANITY.*

In the course of the three years which have just passed, we have studied in all its phases the domain of mental aberration, and there are few points which we have left unexplored. And yet there is a large province which remains almost unknown to us, of which we have had a glimpse from afar: I mean the border-land which lies between sanity and insanity.

The public, or, to be more exact, outsiders who have never crossed the threshold of the temple,—*i.e.*, of an asylum for the insane,—appear to suppose that a mathematical line separates the two states: that here stands truth, there error; on one side insanity, on the other right understanding; in other words that one is a lunatic or one is not. These perfectly simple, but absolutely false ideas, satisfy minds which are only capable of seeing one side of things, and thus we may easily account for the favor in which they are held, and the general acceptance they enjoy. In consonance with these erroneous ideas, an illustrious orator once said that a quarter of an hour's conversation sufficed for him to decide whether a person was sane or insane.

Here I am reminded of an historic occurrence. About half a century ago Lieut. Gen. Count de la Rue was empowered by King Louis Philippe to negotiate a treaty with the Emperor of Marocco to determine the Western frontier of Algeria. A line was drawn beginning at the Mediterranean and extending inland; but after reaching a certain point the commissioners, by common consent, left the frontier undetermined, because, as the natives asserted, there was nothing beyond but an uninhabited desert. The cunning of the Mussulmans triumphed over the intelligence of the French negotiator, for we know now that this so-called uninhabited territory contains a population of six hundred thousand souls.

It is the same with the region situated between insanity and reason, which is usually believed to be a desert, but which comprises not six hundred thousand, but many millions of inhabitants. I wish to conduct you into the midst of this interesting population in order to study its traits, to examine its manners and customs, and to ascertain its characteristics.

The Spanish proverb says:

"De medico, poeta y loco
Todos tenemos un poco" *

—there are, in fact, very few men who can boast of having followed, during their entire lives, a perfectly straight line, and of having always conducted themselves in a perfectly reasonable manner.

The ingenious poet who has related to us the frenzies of Roland shows us the paladin Astolfo transported by special favor to the moon, (where the right minds of lunatics are to be found) seeking there the right mind of his illustrious cousin, in order to bring it back to earth. On arriving, he is received by a venerable old man who proves to be the apostle St. John, and who, after having done him all the honors of the country, leads him into a sort of store or pharmacy, where are arranged in order innumerable phials, in each of which is inclosed the right mind of some mortal living here below, and bearing a label with the name of its legitimate owner. In seeking for the right mind of Roland, Astolfo is surprised, and even scandalized, to find a bottle with this label "Reason of Astolfo." "How is this?" he cried, "I am not mad! I know perfectly well that I am in my right senses." "Calm yourself," said the holy apostle, "and since Providence favors you, open that bot-

* Opening lecture of the clinical course on Mental Diseases at the Asylum of Saint Anne, Paris. (November 19, 1882.)

* Every one has in him a little of the Doctor, the Poet and the Madman.

tle and inhale its contents." Astolfo obeyed, and hardly had he gained his reason, when he perceived that during his whole life he had acted like a madman. But such insanity as this belongs to the domain of the moralist, and it is as physician that I wish to speak to you.

I propose to show, that among the fellow citizens we meet every day, and whom we elbow every moment in public places, there are many who, judged according to the ordinary diagnostic rules, would very justly be pronounced insane, and yet at no period of their life could they have been legally locked up.

To proceed in order, and make the subject more clear, we must divide up this vast territory and designate some of the categories in which may be classed those minds often brilliant, even highly gifted, but which are more or less ill-balanced. It is incontestable that of all rational lunatics, if I may be allowed the expression, the most interesting are those whose insanity is betrayed by their acts rather than by their discourse.

The subjects of *impulsive* insanity must be mentioned first. These patients, while their judgment remains absolutely unimpaired, suffer aberration of the will, and may sometimes become criminals.

Among these impulsions some are puerile or at least inoffensive. As an illustration we may recall the innocent hobby of Dr. Samuel Johnson, who could not walk in the streets of London without touching each post he passed. When he by chance forgot one he returned to touch it.

Alongside of this inoffensive type may be ranged other tendencies which cause annoyance only to the subject himself. Some polished and well-educated men, are continually tempted to use coarse language; oftentimes devout men find themselves impelled to pour forth blasphemies: such was the case with the English writer, Bishop Butler, who was all his life tormented in this way, only resisting the impulse by a strong effort of the will.

There are, however, tendencies of this kind which may involve the life of the individual. A medical friend of mine was consulted by a man bearing a good name, who wished to marry a young widow, whose good qualities and fortune were all that could be desired. "But," said he, "it is impossible for me to marry. My betrothed insists upon my visiting her at her home. But as she lives in the provinces, I should be obliged to go there by railway, and I dare not do it, for I always feel the temptation to throw myself out of the car window. I would rather give up my marriage." He was advised, in order to become accustomed to it, to take a few trips in the belt railroad around the city; but he never could pass Auteuil. He had to get out at that station for fear of an accident.

After mentioning impulsions of this kind—and they are more frequent than one would suppose—we come quite naturally to that tendency to suicide so often found in subjects otherwise perfectly sane and which leads them to take their own lives from the most trivial motives. Numberless instances might be cited. It is evident that what takes place here is the loss or weakening of one of the most important of animal instincts, the instinct of self-preservation.

Next after this, or alongside of it, comes the homicidal impulse, which often takes possession of people who in every other respect appear sane. Every one is familiar with the case of the shoemaker who came one day to consult Moreau of Tours because, he said, whenever he bowed his head, he felt a violent desire to murder his wife and children. Compare with this the sad and familiar case of Thouviot who, beset by an irresistible desire to kill a woman, at last, after many hesitations, killed a young girl he had never seen before, and whom he met by accident in the kitchen of a restaurant. From these instances we see that persons that are to all ap-

pearance perfectly sane, may be subject to the most horrible impulses.

Kleptomania furnishes us another example of impulsive insanity. The disposition to steal trifles often manifests itself in persons quite above and beyond the reach of common temptations. The case might be cited of a celebrated statesman who has held some of the highest political positions in his country, and who whenever, he takes dinner in the city, is invariably accompanied by a servant whose business it is to carry back to their owner the silver spoons and forks which his master is sure to steal.

Some kleptomaniacs limit themselves exclusively to taking certain special objects, which clearly proves the case to be one of mania.

Peddie reports the case of a very religious man who had the unfortunate habit of stealing, but who stole only Bibles. His thieving was overlooked at first on account of its oddity, but at the seventh repetition, he was brought to court, and condemned for petit larceny.

Another kleptomaniac stole only washtubs, and as he did not know in the least what to do with them, his house had in time an accumulation of useless tubs.

A short time ago I was consulted by a patient who showed simultaneously several morbid impulsions. He was a very talented artist, of lowly birth, and possessing a purely elementary education, but who by his force of will had raised himself above his original station. He had married young; children soon came, and with them cares. He had to double his courage, and when about thirty-eight years of age, without any apparent disease, the man's mind gave way.

He began to feel eccentric impulses, which he resisted only by a strong act of the will. If he saw a mirror he felt the desire to break it with a blow of his fist; if near a window he was tempted to throw himself out of it. If he received bank notes in pay for his work, he felt a desire to tear them up and throw them to the winds. At length more powerful impulsions began to assail him. Every instant he felt himself impelled to cut the throats of his children. His little girl was taken with croup, of which she soon died. During the last night, he watched by her cradle and, according to his own words, "at the very moment while, with abundant tears, I was praying God to save the life of the child, I felt the atrocious desire to take her from her bed, and throw her into the fire." These impulses increased to such a degree as to render life unbearable to him, and more than once he wished to commit suicide. Finally, the last time that he came to consult me he said, after having related his miseries, "Even this moment while I am speaking to you, I feel a strong desire to strangle you, but I restrain myself." This sincere admission coming from a man of herculean frame afforded matter for reflection. I have not seen him since, and I do not know what became of him; but the interesting point of this curious case is that this man had never committed a reprehensible act; he had always conducted himself properly and been able to restrain himself at the critical moment. Of a truth, he was one of those who occupy the border-land of insanity.

Let us now pass to another class of cases.

The *mystics* occupy a vast territory in the domain of mental alienation. I do not wish to dwell upon all the insanities which may have arisen from religious sentiment; neither do I mean to recount the history of all the monstrous and ridiculous sects which fanaticism has called forth, but I would remark that persons imbued with these strange beliefs are often in business matters very prosaic and common-sense people: they understand perfectly well how to make money, and that, without any doubt, is a proof of right good sense. What is still more remarkable is that insane ideas of this kind may often remain latent, and only be revealed by accident.

I will mention one instance of this.

Some years ago, an old notary died at Neufchâtel, who had acquired a well-merited reputation for honesty and uprightness; he was very religious, and in spite of some eccentricities, had always been considered a very sensible man: he died four years before his wife, and after her death the heirs found a sealed roll of paper, which, according to the superscription, was only to be opened after the death of both husband and wife. The seals were broken and the following writing was found:

"CONTRACT OF PARTNERSHIP.

"Between the Sovereign Great God, the Eternal, all-powerful and all-wise, on the one part,

"And me, the undersigned, Isaac Vuagneux, notary, his very poor, very humble servant and zealous adorer, on the other part, has been made and concluded a contract of partnership, on the following terms:

"Article 1. This company has for its object the business of dealing speculatively in liquors.

"Article 2. My very respectable and very magnanimous partner will deign as his share of the capital to bestow his blessing upon our enterprise in such measure as he shall judge most consistent with his paternal views, and the accomplishment of the immutable decrees of his eternal wisdom.

"Article 3. I, the undersigned, Isaac Vuagneux, promise on my part, to contribute to the partnership aforesaid, all the necessary capital; to carry out all the necessary transactions for the renting of a cellar, purchases, and sales, drawing up contracts, bookkeeping, and in a word to give my time, my labor, and my physical and moral means to the benefit of the aforesaid partnership conscientiously and in good faith.

"Article 4. The books shall be kept in single entry, stating all the transactions which shall take place; and to the sums on the debit and credit sides of the accounts, shall be charged the profits, *pro rata*, calculated to December 31 of each year, at which time the settlement of accounts shall be made.

"Article 5. The net profits shall be divided share and share alike between my high and powerful partner and myself.

"Article 6. For him a special account shall be opened, in which shall figure to his credit, his share of the profits, and to the debit, the various sums which shall have been delivered by me, the undersigned, either to religious corporations, to the poor collectively or individually, or finally which I shall have devoted to pious uses as the Spirit of God shall move me.

"Article 7. When my God judges best to withdraw me from this world, the settlement of our affairs shall be immediately confided to and placed in the care of my nephew M——, whom I now beseech, from that time to lend himself earnestly to the work: after which the share on the final settlement due to my great and beloved partner, shall be at once delivered over to the worthy Chamber of Charity of Neuchâtel, for which I from this moment intend it.

"Feeling the greatest satisfaction in associating my God in my labors, I place my dependence for success in the wise dispositions of His Providence.

"Made, agreed, and settled at Neuchâtel, in my house, under my privy signature and under the seal bearing my arms."

The result of the agreement was to turn over to the benefit of the poor the sum of 7,325.35 francs, which was scrupulously paid over to the needy of Neuchâtel.

Dr. Chatelain, of Préfargier, to whom we owe this curious story, believes that the honest notary was quite in his right mind, but that he had a rather original manner of expressing his sentiments of piety. We think, on the contrary, that Maître Isaac was, at least, on the frontier of insanity, and that his was one of those

latent alienations, which are hidden, so to speak, in the most profound depths of the individual, and come but rarely to the surface.

Side by side with the *mystics* may be placed the *possessed*.* Here, one word, one phrase, one idea is ever coming up before the patient's mind, automatically. It passes the power of imagination to conceive the absurdities into which one is betrayed by the tyranny of these intellectual impulsions. A young man in the course of his studies having heard some of his friends joking about the pretended fatality attached to the number 13, fell a victim to an obsession which forced him constantly to repeat a sort of mental orison: *God, thirteen! Eternity, thirteen! Infinity, thirteen!* He was finally obliged to renounce his studies and go and seclude himself in the country.

A man otherwise sane and in good health, was obliged to give up reading, because when he had turned a page he believed himself to have skipped one, and had to begin again, without being able to go on further.

Another, when he entered a room, could not refrain from counting all the objects which he found there, from the books lying upon the table to the buttons upon the waistcoat of the person with whom he conversed.

These tendencies of the mind are akin to the *illusion of doubt*,† of which I showed you, a short time ago, a very striking example. The case was that of a young man employed in a banking house; a person of regular habits, and scrupulous in the performance of all his duties, but who, for eight years had doubted his own existence, and the reality of external objects. Tormented by this pitiable condition of mind, he came to me to ask me to place him in a private asylum. He was thus fully conscious of his mental condition, and yet can it not be said of him that he was on the frontiers of insanity?

Patients who are subject to vertigo present somewhat analogous symptoms. I venture to class under the head of *Vertigo*—a term not quite exact perhaps, but whose meaning is understood—such phases of mental disorder as *agoraphobia*, of *claustrophobia*, and *topophobia*, which are met with in persons otherwise perfectly sane.

A curious example of an analogous state of mind has just been published by Dr. Cabadé.* The patient, otherwise very intelligent, skilled in business, and bright in conversation, found it almost impossible to perform some of the most ordinary actions. In order to cross the threshold of a room, he must have some one to push him over it. He could not rise from a chair, unless some one took him by the arm. Only after repeated efforts was he able to pass an imaginary obstacle in the street. Still, even in the worst of his balking, if he knew he was watched, he displayed great cleverness in baffling the lookers-on. For instance, if he felt himself impelled to step back, at the very moment when he was entering a carriage, he would pretend he had dropped something, or that he had seen something wrong about the vehicle or the harness. After two years of this, the patient found himself summoned to render his military service of twenty-eight days. He begged his physician to procure his exemption from this duty. The doctor invited two fellow physicians, whose duty it was to pass upon requests of this kind, to breakfast with him in company with the patient. During the entire meal, Mr. —— was so agreeable and witty, that after his departure, the two doctors asked of their confrère whether he had not been trifling with them. His sole response was to lead them to the window of his office, which looked upon the boulevard, where Mr. —— had to pass. The man was seen to be terribly agitated: he could not pass a tree, a stone, the

* Obsédés, *obsessed*.
† *Folie du doute*.

* "L'Encephale." Par le dr. Cabadé, t. II., no. 3, p. 454.

shadow of a house except after repeated efforts.

Patients of this kind are closely related to the innumerable and unbearable tribe of *hypochondriacs*. Carried beyond certain limits, hypochondria reaches mental alienation; but every physician has seen perfectly delirious ideas develop in persons of right mind, on the subject of their own health. Here is a striking example. A lady called upon a well known specialist, and said to him: "Sir, I have come to consult you for a disease of the prostate gland." "But, Madame," exclaimed the much astonished physician, "you have no prostate gland."— "What, Sir!" answered the lady, indignantly, "I have no prostate gland? Why, I have just read a medical work upon diseases of the prostate gland, and I feel all the symptoms!"

But I must study brevity. I had wished to speak of many other phases of semi-insanity—as the *eccentric* phase, the *irritable*, the *senile*, the *sexual*, the *inventional*, etc.; but I pass them by in silence and will consider only *hallucinations*.

It is with just reason that Dr. Luys places hallucination in the group of mental diseases treated under the head of *Vesania*. Without doubt, hallucinations in most cases are a symptom of mental disease and the leading symptom; but it sometimes and even often happens that these sensorial troubles become the cardinal point of vesania, the real starting-point of crazy conceptions. The patient then becomes insane, *because* he is hallucinated.

Those subject to hallucination are of two distinct classes. One class preserves the equilibrium necessary to judge of their hallucinations; the others are completely controlled by their hallucinations. The first are on the frontier of insanity, the second have quite passed beyond it.

Among the consciously hallucinate is to be classed a young man, at present under treatment by me. He is a very well informed chemist, and has given much study to the solution of a very important industrial problem: his aim was to invent a new process of gilding. It was, he says, from inhaling the fumes produced by his chemical experiments that his health became impaired. In the beginning he heard a voice which said to him, "Get away from there." Then he felt shooting pains and creeping and prickling sensations in different parts of his body; and now for some time he continually inhales the odor of hydrocyanic acid. It was to get rid of these hallucinations, which he clearly recognizes to be illusions, but which justly cause him anxiety, that he asked to be placed in an asylum for treatment. Here then was a conscious hallucinate, but he is on the frontiers of insanity; for often a patient, after having for a long time resisted his hallucinations, ends by believing them and becomes insane.

There are, however, many persons who for a considerable period of their lives are troubled with unceasing hallucinations, and yet who never believe in their reality. Such was the patient mentioned by Wynter, who experienced an oily sensation over all the surface of his body: he felt as if he had been soaked in grease. Such also was, above all, that famous Lelorgne de Savigny, who, harassed by the most distressing hallucinations of sight, of which he has left us a detailed description, ended by hiding himself in utter darkness, as the only means of escaping from that painful obsession.

Note here, that hallucinations, even conscious ones, may have a direct influence upon one's acts. My friend, Dr. Mesnet, once showed me a very intelligent alcoholic who suffered from strange hallucinations of hearing, the nature of which he fully appreciated. In the morning he would rise full of good resolutions, and would start out to go to his work. Unfortunately, in going to his work he had to pass a certain dram-shop, the geographical position of which he knew only too well. As he drew near to it, he would

hear two voices, that of his good and that of his bad angel. The first would say, "He will not go in," the second, "He will go in, he will go in." As he came nearer still, the voice of the bad angel would become more and more predominant. At last he would go in, and as soon as he had taken his dram, the hallucination disappeared as if by enchantment. One day this man was walking along the quays. A voice commanded him to throw into the Seine two five-franc pieces which he had about him. He obeyed immediately, and hardly had he done so, before he wished to throw himself into the river, because, as he said, "we had not at that time twenty francs in the house."

Thus, in this drunkard, hallucinations, perfectly appreciated at their just value, led their victim to commit insane actions.

I believe I have sufficiently demonstrated the proposition formulated at the beginning of this lecture. We are surrounded by people who occupy a more or less high position in society, who attend to their affairs, who apparently discharge all their duties, and yet whose intellects show weak points—actually delirious conceptions or crazy impulses; and yet they are not to be confined in an asylum because they are not, in the strict sense of the term, *insane.*

It is, no doubt, alarming to think that the engineer who runs the train on which we have taken passage, perhaps has hallucinations; that the lawyer whom we are about to consult is perhaps subject to the illusion of doubt; and that the notary who draws up our contracts has, perhaps, made an act of partnership with the Creator of the world. But we must take the chances. Not only do these semi-lunatics often reach high station, but they also exercise an undeniable influence upon those about them, upon their country and upon the age in which they live. The hallucinations of Joan Darc effected a miracle which the heroism of the best captains had been unable to achieve; and among the famous men who have most deeply impressed their image on their own times, there are many, who, if they were not absolutely madmen, were at least half insane. The fact is, that minds on the extreme limits between reason and insanity are often more intelligent than others; they are above all, first and last and all the time, men of action, and they are so precisely because their minds are in a state of *agitation;* finally, they possess strong originality, because their brain is teeming with absolutely new ideas. Read history and you will see that it is just such men that have revolutionized the world, founded new religions, created and overthrown empires, saved nations (except where they have ruined them) and who have left their mark upon the science, the literature and the manners of their country and of their time. Civilization would often have stood still if there had not been madmen to push it forward. Let us therefore give due honor to insanity, recognizing therein one of the principal agents of progress in civilized society, and one of the greatest forces that govern humanity.

CEREBRAL DUALISM.

I INTEND to devote the opening lectures of this year's course (1883–84), to the study of the disturbances of the faculty of speech, which cover so large a space in cerebral pathology; and not to depart from our usual course of teaching, I shall treat the subject from its psychological side. For though in some respects these phenomena belong to ordinary pathology, in other respects they relate directly to psychological medicine.

It would be impossible to exaggerate the importance of language in the harmonious complex of the intellectual faculties. It is not simply a means of expression that we have to deal with here: language, it must be

well noted, is above all a means of perfecting thought. It is not only the principal instrument in achieving and accumulating for so many centuries the results of civilization: furthermore, and above all, it is the essential mark, the distinctive characteristic, of human intelligence.

This is why the aphasic, though not numbered with the insane, yet unquestionably belong to the domain of mental alienation. If they are not insane in the ordinary and medico-legal sense of the word, their intellect is nevertheless, so to speak, *maimed*, and on that ground they merit our attention.

But before studying disorders of the faculty of language, we must touch upon a higher, and if possible, a larger question.

The one grand fact which stands pre-eminent in the history of aphasia is the fundamental discovery of the two Daxes and of Broca; this, reduced to its simplest expression, from a clinical point of view, may be thus formulated: *aphasia always or almost always coincides with paralysis of the right side.* Preoccupied with the doctrine of cerebral localization, Broca sought, above all, to find a center for the faculty of language, and this center he has localized in the convolution which now bears his name. But the point of most importance for us just now is to remember that Broca's convolution is situated in the left hemisphere: hence results the inevitable consequence that the two hemispheres do not possess the same faculties, and do not control the same functions. It was almost in spite of himself that this great observer yielded to the necessity of formulating a paradox which was bound to awaken violent opposition to his ideas. But once entered on the path, he goes resolutely on. To comprehend fully the storms to which this doctrine gave rise, we must recall the doctrines so brilliantly set forth by our immortal Bichat in his "Researches upon Life and Death." In this celebrated book, where he shows the distinction between the "life of relation," and the "organic life," he attempts to prove that perfect symmetry and absolute synergy of the nerve centers is the fundamental condition of the regular working of animal life; and this parallelism, which he holds to be necessary for the precision of sensorial impressions, he extends to the operations of the cerebral faculties. "Our eyes would see at cross-purposes," says he, "had not nature made them to act in harmony; our judgments and our perceptions too would conflict, were the hemispheres naturally discordant." It is known that at the autopsy of Bichat, the falx cerebri was found out of its normal place, and one of the two hemispheres very noticeably larger than the other. These anatomical facts, so contradictory of Bichat's teaching, seem to explain in a great measure the intellectual superiority of that great man. He thought with his large hemisphere, and lived, no doubt, with his smaller one. Still, though the idea of symmetry as a necessary condition to regular cerebral action was soon abandoned, it was for a long time thought that the two hemispheres, like the two eyes, fulfill the same functions, and may supply each other's place. Flourens, as we know, attributed to all the regions of the cerebral cortex the same functions, the same privileges, and the same kind of activity. Hence the idea that the brain, in its functions, is a unit, has become so rooted in our minds that it is but slowly, with difficulty and by degrees, that we have been able to discard it.

And yet, as almost always happens, the doctrine of cerebral dualism has had its precursors, who, if they entered not the promised land, at least opened the way to it. Not to rehearse the whole list, I would cite the remarkable work of Wigan's, entitled, "Duality of Mind." The author in reality meant to treat of cerebral dualism, but he durst not use that title, for he wrote in 1840, and in England. At

that time, and in that country, a writer had to be a spiritualist* at any cost; and the alienists took the utmost pains not to incur the reproach of materialism, which they dreaded above all things. The times have greatly changed, and the opposite is the case to-day. A question of fashion, as you see.

It is none the less true that in Wigan's book we are continually reminded that there are two cerebral hemispheres; the author goes so far as to assert that it is a fatal error of language to say *the brain:* we must say the two brains. He insists upon the mutual independence of the two hemispheres in their functions; he gives examples of double intellectual activity very much like those since collected by Dr. Luys. I will cite one of the cases given by Wigan. An Anglican clergyman came to him one day, and addressed him about as follows: "Sir, I am a miserable being; I have engaged in questionable speculations, in which I have compromised not only my own fortune, but also those of my best friends; I am overwhelmed with remorse; I cannot sleep; and the remembrance of my guilt constantly torments me. And yet, sir, not a word of this is true. I am a clergyman of pure morals, of irreproachable conduct: I have never speculated, and I owe no person anything. I beg of you, deliver me from this uncertainty which drives me to despair." In this patient the two hemispheres seem to have performed contradictory functions.

Proceeding to demonstrate his thesis, the author borrows from Solly a very judicious remark: "There are several cases," says he, "of unilateral lesions of the brain, in which the intellect has preserved all its integrity; but there is not one single case of profound lesion of the two hemispheres without more or less complete abolition of the intellectual faculties."

Wigan, in short, develops with much force and logic the thought which inspired Racine to indite those beautiful verses, "Je sens deux hommes en moi," etc. (I feel two beings in me). The duplication of personality which plays so great a part in certain forms of mental alienation, furnishes him with arguments of great value. But he quite misunderstood the difference of function which distinguishes the left brain from the right; and this is precisely what constitutes the most original and scientific part of the doctrine of cerebral dualism.

We find even in the human race instances of two individuals coming into the world more or less completely joined together: to a certain point they may have the same trunk, but they have two heads, each possessing its own perfectly independent intelligence and will. Here is a subject for astonishment and admiration, for any one who has not reflected sufficiently upon the mechanism of the intellectual functions. But I can show you a still more remarkable phenomenon—the union of two independent brains, in one head, in one skull. We are all bicephalous; we have two independent brains, each having its separate functions: the right and the left hemisphere. Let us first consider the latter.

A fact of the highest importance in natural history, and one that may assuredly be reckoned among the most striking characteristics which serve to distinguish species, is the undeniable preponderance, among all human races, of the right side over the left: and by reason of the intercrossing of the pyramids, that is equivalent to saying that the vast majority of mankind are left-brained: they act principally with the left hemisphere.

The right arm represents strength, the right hand represents skill, or to express the idea more precisely, it represents intelligence in movement. In every country under the sun this preponderance of the right arm and hand is so patent that the implements which are used in the different occu-

* The opposite of *materialist.*

pations are constructed in such manner as to be held by the right hand. This sometimes necessitates a very special conformation, as all artisans know.

In some cases the two hands work together, and mutually support each other, but then it is always the right hand which has the higher rôle, while the left is subordinate. We know, for instance, that in pieces of music composed for the piano-forte the most important effects, those which require strength as well as suppleness, are assigned to the right hand, while the left * hand serves mainly for the accompaniment. All nations do not play the piano, but all nations do wage war. Among the ancients, and in those races which have preserved their primitive manner of fighting, it is always the right hand that holds the sword, or which brandishes the lance, while the left hand bears the shield. The rather intricate tactics of the ancients rested upon this fundamental fact; and even in modern tactics, it is the right hand which plays the more important part in the handling of the musket.

It is hardly necessary to say that in sewing, writing, the arts, it is still the right hand which plays the principal part.

No doubt, there are left-handed persons, but these are only inverted right-handers. But indeed the important point which I wish to make clear, is not the preponderance of the left over the right hemisphere: it is the superiority of one of the two halves of the brain. Generally man chooses the left brain: in some exceptional cases he gives preference to the right; but the point above all to be remembered is that man is not naturally ambidexter like animals: he is essentially unilateral.

Ancient superstitions seem to consecrate in a certain degree this instinctive preference of our species. Among the Romans, omens appearing on the right-hand side (the approach of a flock of birds, for instance) were considered as favorable; if, on the contrary, they came from the left side their portent was adverse. Modern nations have, it is true, shaken off these old superstitions; but in many European languages the ideas of *rectitude*, of *orthodoxy*, and of *justice* have direct reference to the idea of the preponderance of the right hand; and to it we owe in English, German and French the noblest word that human language possesses,—*the right.* *

The principal fact resulting from this whole series of observations, is that man employs in his finer work, in operations which require the active exercise of the intellect, the left brain; and in work of the coarser kind, the two hemispheres at once. If the inflexible law of education continues to bring under its yoke the subjects who seem to form exceptions to this rule, that will only prove once more that they submit to the law of the majority.

There are a number of authenticated instances in which the right hemisphere has been known to replace in all its functions the left side of the brain, the latter having, in the early years of life, suffered a pathological atrophy.

One of the most remarkable cases of this kind is the one observed by Cruveilhier. In a man aged forty years, who from his infancy had had a contraction of the right side, at the autopsy an atrophy of the left hemisphere was found, while the opposite side of the brain showed the normal conditions, and the usual volume of the organ. Now in this man not only was the faculty of speech intact, but furthermore the intellectual faculties, and all the skill necessary for doing profitable work were perfectly pre-

* In technical language, the right hand executes the *treble*, and the left the *bass*, which is an accompaniment.

* As in the phrase, "Defend the Right." In French, "la main *droite*"=the *right* hand; "le droit"=the right. In German, "die *rechte* hand"=the *right* hand; das Recht=the right.

served. Thus with the right brain he performed all the functions which usually devolve upon the left hemisphere. It would be easy to multiply instances of this kind. We will content ourselves, however, with mentioning the remarkable case recorded by Moreau of Tours; the analogous case recorded by the late Professor Parrot: and finally the more recent observation of Schaeffer of Lorrach.

The cases just given prove to a demonstration that the two hemispheres can mutually take each other's place, provided always that the education of the organ shall have commenced at a period when, its evolution not being yet terminated, it was capable of acquiring the faculties which it lacks.

Later, after the respective positions are taken, the evolution completed, and the habits formed, it is very difficult, not to say impossible to *transpose* the intelligence, and the substitution of one hemisphere for the other will be very awkwardly done. Then, indeed, it is that the pathological facts demonstrate the specialization of one of the two hemispheres, and the superiority of the left hemisphere.

In this respect there is a great difference between man and the animals that most resemble him. All animals are ambidextrous, and this is one reason for their agility. A cat uses with equal adroitness the right and left paw in catching its prey. The monkey, the most adroit of all animals, uses his four hands with equal dexterity, and can even utilize his prehensile tail. The result is a facility of motion which gives him the advantage even over birds; and all naturalists agree in saying that in their native forests monkeys seem to fly rather than to jump from branch to branch. But the condition of this physical superiority lies in the equivalence of the two sides. We know full well that some observers, among them, Ogle, have held that some monkeys employ the limbs of the right side by preference. If this were so, we should have here a phenomenon of transition, which would serve in a certain measure to confirm our proposition; for whatever may be one's opinion as to the origin of man, it is undeniable that the monkeys are our poor relations, for whom we may sometimes blush, but whom we may not disown.

Here we may remark that specialization is everywhere the law of progress. In primitive society man practices all trades in turn; in civilized countries the division of labor becomes daily a more imperative rule, and to that system modern society undoubtedly owes its superiority.

We see here manifested in the social economy the action of a law which governs all nature. The specialization of the organs is, in organized beings, the law of progress. The shapeless jellyfish, which belongs to the lowest grade of organic life, has, so to speak, but one organ, for it has one only faculty, that of assimilating to itself the objects it encompasses. As we ascend the scale of organized beings, we see special organs appear, and one of the most striking instances of this organic perfectionment is the distinction of sex, which exists only in the higher animals.

Of all living creatures, man is undeniably the one that possesses the most highly specialized organs; in him specialization has been carried so far that one half of the brain is used for thinking, speaking, and acting, while the other half seems principally devoted to the vegetative life and serves only, so to speak, in active existence to sustain the action of its superior. But if it is true that the specialization of organs gives them higher rank, it is allowable to believe that a direct relation exists between the choice of a hemisphere, and the superiority of intellect in man. He is the first of all animals; he is "king of creation," not as philosophers of the last century held, because he has a hand, but because he has a *right* hand. I shall not be accused here of rating the tool higher

than the workman, and of attributing to the instruments of the intellect that which belongs only to the intellect itself. I look upon the preponderance of the right hand, not as the cause of the superiority of man, but as the most direct consequence, as the most striking sign of his moral pre-eminence.

Though the right hemisphere seems to play a less brilliant rôle than its partner, it nevertheless possesses faculties that are all its own, and which may in a measure trench upon the intellectual and moral domain. It has been supposed that it specially controls the processes of nutrition. This hypothesis has not yet been demonstrated; but there is some ground for supposing that the right hemisphere plays an important part in affective phenomena. Luys was the first to notice that subjects struck with hemiplegia of the right side, are much more emotional than others; they seem to have lost the power of controlling their emotions, although they retain their intellectual power. Since my attention was first drawn to this point, I have more than once had proof of the correctness of this observation. Hemiplegic patients with the left side affected—and I have seen many cases in my practice,—exhibit in a remarkable degree that tendency to emotion which we so often notice in cerebral affections. On the other hand, it is certain that hemiplegia of the right side has a much more serious prognosis, as far as the intellect is concerned. This double rule is subject to a great many exceptions, like most of the rules that have been formulated in cerebral pathology. It is none the less true that the rule in question is in harmony with what we observe in the majority of cases. The considerations just advanced help us to understand in a measure the dualism of intellectual acts.

In the act of playing the piano-forte, Dr. Luys finds a striking example of this independent action of the two halves of the brain, which may act simultaneously in maneuvering in different regions, so to speak. We know that pianists play with the left hand in the key of *fa*, and with the right hand in the key of *sol*, in such a way that the two hemispheres do very complex work, each of them reading and interpreting a text written in two different languages. Doubtless here the force of education comes to the aid of nature, and cerebral automatism renders easy and simple an effort which seems laborious and difficult to those who have never acquired that artificial power; but the beginner has to practice for a long time and to learn by degrees which keys to strike; at that period of the psychic evolution it is not automatism that is brought into play, but the voluntary and forced dualism of cerebral action.

It is difficult to resist the temptation to apply this doctrine to many facts of mental pathology in which we find evidence of a manifest duplication of personality. It has been known for a long time that the insane are not always unconscious of their insanity; indeed many lunatics are aware of their condition, and deplore their own mental extravagances. We know that in many of our patients ideas co-exist that are absolutely contradictory. This was the case with the patient who was lavish of imaginary millions, but who would not allow 30 francs, which he had really deposited in a savings bank, to be touched. And this co-existence of contradictory ideas is specially noticeable in patients subject to *impulses;* such a patient is tempted to commit a crime, but he resists with all the strength of his moral nature the thought which possesses him, and frequently comes to beg the aid of a physician.

A certain young man, in whose case persistent hallucinations of sight and hearing played the principal part, exhibited in a remarkable degree that strange duplication of per-

sonality which is one of the strongest arguments in favor of cerebral dualism.

During a voyage to South America he had a sun-stroke, which left him very ill, and he was unconscious for a month. A few days after having regained his senses, he heard distinctly a man's voice, perfectly articulated, uttering the words: "How are you to-day?" The patient answered, and a short conversation ensued. The next day the same question was repeated. This time the patient looked about, and could see no one in the room. "Who are you?" he said. "I am Mr. Gabbage," answered the voice. Some days later the patient had a glimpse of his interlocutor, who thenceforward presented the same features and dress. He saw him always from the front, but only his bust; he always wore a hunting costume, and had the look of a vigorous and well-built man of about 36 years, with a heavy beard; complexion dark, eyes large and black, and eyebrows strongly marked.

Impelled by a justifiable curiosity, our patient would fain know the calling of his questioner, and how and where he lived, but the man never consented to tell more about himself than his name. Later the young man consulted all the directories * of England and France, of Europe and America, but without being able to satisfy his curiosity. But soon his tyrannical interlocutor, not content with disturbing his sleep, and pestering him with incessant questionings, began advising, or rather commanding him, to do the strangest and most absurd things. One day he was quietly reading his paper before the fire. All of a sudden Gabbage ordered him to throw his watch and chain into the fire: he obeyed immediately and did not move until he had seen them completely destroyed. Another day, at Montevideo, finding himself near a lady whose child was ill, he was told to make the young woman take a strong dose of chlorodyne and to give a double dose to the child. The latter died in a few hours; the mother was very seriously ill, but finally recovered.

Another day he received an order to throw himself from a third story window; he obeyed immediately and could not help feeling, as he lay bruised upon the pavement, that Gabbage was rather a bad adviser.

One day while I was conversing with him on the subject of his impulsions, he said to me, "You are not up with the progress of science; you seem not to know that often a man has two brains in his head. That is precisely my case. Gabbage has the left brain and I have the right. Unfortunately the left brain has the mastery, and that is why I cannot resist the counsels of this man, who seems to be an evil spirit, or at least a malevolent person."

This conviction was so deeply rooted in him, that one day after taking a subcutaneous injection of morphine, he said to the student who had administered it: "You have made a mistake; you have made the puncture on the side that belongs to Gabbage; hence it will have no effect upon me."

The patient left the hospital a long time ago, but I have since learned that he continued in the same state of hallucination, and still under the influence of his persecutor.

Here, then, was a brain whose operations seem really to have been twofold, and one might well believe, according to the theory of the patient himself, that one of the cerebral hemispheres was delirious, while the other regarded it with compassion.

But I do not wish to embark upon a sea of hypotheses: it suffices if I have given you some faint conception of the magnitude of the subject under consideration, and of the consequences which may be deduced, from a psychological and pathological point of view, from the doctrine of

* *Recueils d'adresses.* A formidable task! —[*Translator.*

cerebral dualism. Without quitting the domain of positive facts, I believe I may assert the mutual independence of the two hemispheres, and say with Wigan: "It is a fatal error to say *the brain;* we must say *the two brains.*"

Innumerable objections based on points of detail might be urged against the ideas which I have just set forth. This is not the place to answer them; I will only reply in advance to an accusation which may be brought against me, and which I do not believe to be deserved. I shall perhaps be accused of having forgotten the close solidarity which binds together the different centers of the encephalon, and the sort of physiological brotherhood which leads them to aid each other mutually, and to exert a very positive influence upon each other. Nothing could be further from my mind than such a heresy. Though I have defended the principle of independence, I do not by any means ignore the facts of co-ordination. The several regions of the encephalon may work separately, but they are created to work in accord. Harmony is the higher law which governs the actions of this complicated apparatus, and which rules all its movements. If in the pathological condition we see differences arise, revolts and acts of insubordination, it is none the less true that in the normal condition the different regions of the nerve centers must necessarily lend each other a helping hand for the performance of the common task; and if reason is to maintain its empire, it is necessary that the steeds that draw its chariot, shall go always at an even pace.*

* In an interesting work upon the preponderance of the right hand, Prof. Sigerson, of Dublin, comes to the conclusion that primitive man was ambidextrous; but that the principle of the division of labor has gradually developed the preponderance of the right side (that is to say, of the left hemisphere). This is nearly the same theory we maintain. Prof. Sigerson's essay appeared in the "Proceedings of the Royal Irish Academy." Sec. 2, vol. iv. (Science) 1884.

PROLONGED DREAMS.

Among the phenomena of disordered mental activity, there are some which are met with not only among the insane, but also in persons of perfectly sound mind; to this category are to be referred *prolonged dreams*, of which I propose to speak to-day.

Our asylum has just received a patient whose very singular history illustrates at once both the theory of visual hallucinations, and the relations so often studied and discussed, between dreaming and insanity.

We must make haste to study this curious case, before it passes beyond observation, for already the patient, having recovered in a great measure his reason, fully appreciates the absurdity of his delirious conceptions, and begins to resume his moral liberty. The ravings of the insane are influenced by the occurrences of every day. That this is so is proved by the history of the patient of whom I have just spoken.

On the 16th January, 1883, a manifesto was posted up, in Paris, signed "Napoleon"; the same day the prince was arrested, and this gave rise to many malicious remarks, by the political press.

Among the articles published on the subject was one which attracted much attention by its bitter irony, its cutting sarcasm, and its evident hostility; I refer to the article signed "Paul de Cassagnac" and published in the *Pays* of January 17.

Some days later, on the 22nd January, a respectable looking man presented himself at the Conciergerie and asked to be put into prison; he said he had just assassinated Mr. Paul de Cassagnac; his evident flightiness and his nervous, animated style of speech, at once aroused the suspicions of the police, so accustomed to seeing lunatics. He was directed to the infirmary of the prefecture of police, where he was at once questioned.

In spite of its strangeness, his story

showed nothing impossible, nor even absolutely improbable. He gave his name as Cousin (I see no harm in mentioning it, as it was not his true name). He said he was secretary to Col. Brunot, aide-de-camp of Prince Napoleon. His very decided Bonapartist opinions had been terribly shocked by the attacks directed against the Prince by the newspapers, but the attitude of the *Pays* had particularly enraged him.

Having made up his mind to demand an explanation, on Sunday, January 21, he went to the office of that paper, where he found no one; passing through a number of vacant apartments, he reached the office of the chief editor, whom he found seated at his desk, engaged in writing an article. He immediately addressed him, reproaching him for the terms used in the article, and accusing him of having made a cowardly attack upon a fallen foe, a royal prisoner. He then demanded a retraction.

Without raising his eyes, without turning his head, Mr. Paul de Cassagnac continued to write, and made no answer. Angered by such treatment, Cousin drew from his pocket a loaded revolver, put his left hand upon Mr. de Cassagnac's right shoulder, and fired six shots at him. His victim fell without a cry; death was instantaneous.

After having finished this recital, the prisoner was searched, and a revolver and fifty cartridges were found upon him. On the way to prison, the man cried out: "Now I hope you are going to bestow on me a decoration."

It was thought that possibly a crime had been committed. An officer therefore was sent to question Mr. Paul de Cassagnac about the matter. He said that not only had he seen no one upon the day of this imaginary assault, but that he had not even been to the office of the *Pays*.

It was thus evident that the man was out of his mind; he was taken to the asylum of St. Anne, and came under our care, January 23. At the time of his arrival, he was in a state of maniacal excitement, which made him very dangerous. He spoke with great volubility, and expressed himself with much elegance; he was indignant if any one seemed to doubt the truth of his assertions, and the slightest smile would put him beside himself.

Two days later, January 25, we put him through a thorough interrogation. The confinement in the asylum had already had its effect, and of his former condition there remained but a slight delirium, a less intense excitement; reason was beginning to reclaim its rights. He however repeated his first account and gave me some more circumstantial details upon his antecedents.

He was he said, the son of a retired officer, and had received a fair education; he had remained at college until he was fifteen years old, when his father had been murdered.

Obliged to leave college, he became a soldier and served in the Cuirassiers; then he left the army to enter the navy, and served in the expedition to Mexico.

Upon his return to France, he became secretary to Col. Brunet, taking charge of his books and correspondence. Still his duties did not confine him so much to the house but that he was frequently able to absent himself, and to travel for several months.

From all this it can be understood how that, being very devoted to Prince Napoleon, he had felt the greatest indignation in reading the articles directed against him; and not being able to procure any apology from Mr. de Cassagnac, he had shot him.

I asked if he heard the report of the shots—"Not that I remember," he answered; "I was doubtless too much preoccupied to pay attention to that." "Are you sure that you killed Mr. de Cassagnac?"—"They say he is not dead, but he must be very badly wounded," was the reply.

Thus, while being less positive than at the time of his arrest, he persisted in his delirium. He gave many details about his tastes, his habits and his friends. He said he was the only one of his family living, and that outside of the prince's household he had no occupation.

The interrogatory concluded, I requested him to write me a letter giving the principal points of our conversation. This is always a useful precaution to take; in making a lunatic write (provided he will do so) you obtain precise information as to the character of his ideas at a given moment; it is a most valuable document, because nothing is more variable and fleeting than the mental condition of these patients, as we shall soon see.

In fact, the following day, January 26, this man's appearance had completely changed, and we witnessed his entire return to reason. It was thus we were able to find out the truth.

It is true he is the son of an officer and that his father was murdered; but he is not without family, for he has brothers and sisters. It is true that he has been a soldier, and it is also true that he served in the Mexican campaign; but he has never belonged to the household of Prince Napoleon. His opinions are Bonapartist, but he was never in the employ of Col. Brunet. He is a commercial traveler representing a prominent Paris house, and this accounts for the long absences of which he spoke.

Upon his return from a trip to Greece, he found himself on January 1st at Naples, where he heard of the death of Gambetta: he remembers having seen the flags of the shipping at half mast.

Continuing his route, he reached Paris on the 6th January, the day of the obsequies. I mention all these details for they prove his memory to have been perfectly good before the attack. He went to a hotel where he quietly set about arranging his business matters without troubling himself very much about the political occurrences. On the 15th January he made an appointment with one of his friends which rain had prevented him from keeping. This was the last accurate remembrance he had.

From that day there is a blank, a dark gap, in his recollections, as if several pages of the history of his life had been lost. His memory has no record for the period between Jan. 15 and Jan. 26, when he awoke in an asylum—for he is perfectly conscious of his condition and is aware that he is confined as a lunatic in the asylum of St. Anne. He feels deeply humiliated by what has occurred. He acknowledges that the name he gave was not his own, and that there was not one word of truth in the tragic account of his interview with Mr. de Cassagnac.

This man had a prolonged dream; he resembles the awakened sleeper of the "Arabian Nights."

For what is the essential character of a dream? The pivot of the dream is hallucination; the dreamer is always hallucinate; and the hallucinations of the dream have a clearness of outline, a precision of detail, such as is but rarely met with in the state of wakefulness, even among the most confirmed lunatics.

In the second place, hallucinations of sight have an extraordinary preponderance in dreams. Touch, taste, and smell may sometimes be involved, but hallucinations of hearing are very rare; just the opposite is found in mental aberration.

A person dreams that he is present at a session of the Court of Assizes; he sees the presiding judge, the court, the public, the witnesses; he sees the advocates pleading, he believes he hears them, he grasps the tenor of their speeches, but the orator's voice is not the medium of communication.

Or one dreams of setting out on a journey; he *sees* the train which bears him away, the multitude of passengers, the apparent receding

motion of other objects, but all passes without noise; he *sees* the steam from the engine, but he does not hear it.

We find in our patient all the characteristics just mentioned. He saw Mr. de Cassagnac, he spoke directly to him, but without obtaining any answer. He fired six shots from his revolver, without hearing any report; finally his victim fell, without saying one word, or uttering a cry.

There is a third feature of the dream which is worthy of notice, namely, the absence of astonishment. Reflective judgment being suspended, the strangest events take place without exciting the least surprise. This is exactly what happened with our patient. Nothing astonished him. The offices of the newspaper were deserted, he came into the presence of the chief editor without meeting any one: he addressed him, threatened him, without succeeding for a single instant in diverting him from his work: he killed him finally without meeting the slightest resistance. All these extraordinary events seemed to him perfectly natural.

Finally, in dreams there is obliteration of the moral sense. In dreaming we perform criminal acts, without ever feeling remorse. Carpenter tells of one of his friends, a truly religious man, who was much distressed on account of his dreams. He committed robbery or murder in his dreams, without feeling the slightest reproach of conscience; his only source of disquiet being the fear of being hung.

Like this dreamer, our present patient, who believed himself to have committed a murder, requested a decoration, with all the calmness of a clear conscience. He felt no regret for his murderous act.

We find here then a dream, but a prolonged one, a dream which lasted for ten full days: the awakening came gradually, and on January 25, reason had regained its rule.

This singular physiological condition, in which sleep casts its shadow over the waking state, is far from being exceptional; in fact I know many persons who are more or less subject to it.

This question has for a long time attracted the attention of authors. Carpenter, in his interesting work on "Mental Physiology," relates the case of a lady whose remembrance of dreams was so intimately mixed with impressions received while awake, that she never dared to make any assertion whatever, fearing *she might have dreamed it.* Faure, in a memoir published in the *Archives de Médecine*, has related several instances of the kind.

Among the many cases observed by myself the most remarkable is that of a man of fair intelligence, who spent his life in framing romances of which he himself was the first dupe. For example, one day he told his wife that he must attend a competitive examination. He returned a few hours later, and told what subject had been assigned for the examination, and how he had treated it. He discussed the probabilities of his appointment, and went to bed feeling very hopeful. The next day a friend to whom he was recounting the same story, in the presence of his wife, undeceived him by telling him that the examination had not been held at all, and the place was not even vacant. Another time he went home and told his wife he had been insulted by one of his friends, and that they were to fight a duel at six o'clock the next morning. This said, he went to bed and slept quietly. The unhappy wife passed the night in terrible anxiety; but the next morning at six o'clock the husband was sleeping quietly, and care was taken that he should not be disturbed. When finally he did wake up he said nothing of the duel. Again he had been dreaming.

On arriving at Paris, where he had come to consult me, he set out to find me; he returned some hours af-

ter, and had much to tell about our interview; he gave the details of the consultation he had had with me, and of the prescriptions which I had written for him. But this account was purely imaginary; he had never been near me. The following day he wrote me a letter begging me to call upon him. Hardly had I arrived before he began a series of confidences, in these words: "O sir! I am afflicted by a sad disease: I am an abominable liar." He was in fact a liar because his continual dreams encroached to such an extent upon the domain of reality, that he spent his life in relating imaginary occurrences; one could never believe a word he said.

It might be suspected that he sought to hide vicious habits, by giving more or less plausible excuses, to justify his long absences. But when followed and taken by surprise during one of these absences, he would be found seated in a restaurant, or in bed in some hotel, without its being possible to assign any motive even erotic, for his insane fancy. He was apparently lost in a dream whose impressions lasted after waking.

There are numerous analogies between dreaming and insanity, and the first of the two conditions may precede or break the way for the second.

To give but one example: we know what takes place in epilepsy. The most striking and serious form of epileptic delirium is the crisis of fury in which the patient throws himself violently upon the people about him, breaks whatever he can lay hands on, and acts in the most insane manner possible. During the attack, the mental condition of the subject is in every way like that of a man overcome by a frightful dream. But here as in the case of somnambulists, who at times do the most absurd or criminal things, the remembrance of the dream disappears when the sleeper awakens. It is the opposite which takes place with the patients of whom we are now speaking.

Certain cases of insanity appear to be only long continued dreams. Often the dreams are translated into action among alcoholics, and among epileptics still more frequently. Esquirol tells of a German peasant, who while passing the night, with his wife, in an open shed, dreamed that he was attacked by brigands; on waking he seized a hatchet which lay close at hand, and killed his wife, taking her for a malefactor.

I know an Englishman who used to pass every night in frightful dreams; waking suddenly, he would rush, in his night shirt, into the street, uttering terrible cries; his friends used to follow him and strive to quiet him; but for some moments it was exceedingly dangerous to come near him.

Dreams are also sometimes premonitory signs of approaching insanity. Dr. Baillarger knew a merchant, who for some time dreamed every night of treasures, diamonds and wealth; it was not long before he had a stroke of general paralysis, which followed its regular course.

From the foregoing observations I do not conclude, like my revered master, Moreau of Tours, that dreaming and insanity are the same. Formulated in too positive a manner, that doctrine surely goes beyond the truth; but it is very certain that in the first place dreaming is the type of hallucination, and above all, of hallucinations of sight; and secondly, that certain forms of insanity wear the mask of a dream, and answer in all probability to like conditions of the cerebral circulation.

The physiology of sleep is still imperfectly known. Some authors, and among them the School of the Salpétrière, maintain the theory of cerebral anæmia. Others attribute this phenomenon to a congestive condition. Each of these opinions has a share of truth. If more usually, as certain experiments tend to prove,

sleep is really accompanied by anæmia, on the other hand it is equally produced by congestion; the drowsiness which follows a good dinner freely washed down with good wines, certainly does not owe its origin to cerebral anæmia. Nor must we forget that delirium is not always an effect of congestion: a proof of this is found in the delirium of starvation, a raging frenzy characterized by very peculiar hallucinations. The sufferers often have visions of appetizing dishes, of sumptuous repasts, which seem to sharpen their hunger instead of appeasing it. Serious hemorrhages during the last days of pulmonary consumption are also often accompanied by a slight delirium.

Attacks of temporary insanity with hallucinations of sight, most closely resemble prolonged dreams; but, as we have seen, dreams of this character are not always succeeded by merely transitory symptoms nor by an ephemeral delirium. Sometimes they end in fixed ideas which rule the entire course of one's life. Sometimes again these pathological dreams, if they are not the cause, are at least the consequence, and one of the first symptoms, of a condition of cerebral weakness which is often of hereditary origin, and fatally predestined to recur again and again.

It is not so with our patient, who, from the rapidity and completeness of his recovery, seems to us to have suffered a simple attack of temporary insanity; he will, I hope, escape those terrible visitations which leave no hope for a permanent and lasting cure.

This man is almost cured, and in a few days he will leave the asylum. He dreamed that he had committed a murder; if he really had done so, during his dream, what would be the consequences of his act from a medico-legal point of view? Must a man be allowed to go at large who may become dangerous to his fellow creatures? And on the other hand, is it not terrible to condemn to perpetual seclusion a man who has recovered his reason? It is a most painful and difficult problem, which I must content myself with placing before you, without seeking to resolve it.*

INSANITY IN TWINS.

For a long time men have studied the subject of the likeness existing between adult twins, and it must be acknowledged that if sometimes there is absolutely no resemblance further than the ordinary family resemblances of character and organization seen in most brothers, there are on the other hand some twins, who,—whether it be in mind, in form and stature, or in facial expression, in disease or in health—show so perfect a resemblance as to make them almost identical.

Not only externally are these likenesses seen, but also in the inmost organization of the nervous system and in the physiological results consequent thereon.

It would be impossible to find, in proof of this, facts more conclusive than those which I am about to mention. The same disease has been known to appear in twins, with all the same symptoms, at the same moment: here is a manifest proof of the close kinship which unites the two natures. But when the disease in question is mental alienation, the proof acquires a superior force, and naturally leads to the conclusion that the cerebral organization of both the individuals must show striking analogies.

Only a very few cases of the insanity of twins are found in scientific records—but few cases I mean, of mental derangement developed almost simultaneously in twins, with delirium of the same nature, and apart from instances of binary insanity, or

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* This man is now completely recovered, and has for some time been following his usual occupations.

communicated insanity.* Twins are of course not exempt from the laws which govern hereditary insanity, where a family, one member after another, becomes insane, showing almost the same derangement of intellect.

But by insanity of twins I mean a mental alienation developed under conditions peculiar to twins, and characterized by these three features: 1st. Simultaneous occurrence of the symptoms. 2d. Parallelism of the insane conceptions and also of the other psychological disturbances. 3d. Spontaneity of the delirium in each of the two individuals attacked by it.

These three traits are found in the highest degree, in the following example:

A sober, steady man, one who had always enjoyed good health, was married young. He had six children, two boys and four girls, of whom two girls, twins, are the subjects of these observations. The mother, of whom we know little, died in confinement, at a rather early age.

The twins, left orphans at five years of age, were brought up together in Lorraine, until they were fourteen years old. They are so much alike physically, that it is difficult to tell one from the other. Both are tall, of a strong constitution, sanguine temperament, have rosy cheeks, prominent cheek bones, round faces, and brown hair and eyes.

The sisters have always been united by a tender affection: their education was identical, and it is worthy of notice that they were not brought up as devotees: this is an important point, as the delirium which they both show at present, is of an essentially mystic character.

When about fourteen years old, their lives diverge. They are at present twenty-nine, having been born October 5, 1854. Louise came to Paris, Laura remaining for some time longer in the country.

Louise married at twenty-one, and has a child seven years old. Life has been a hard struggle for the poor woman. Her husband fell seriously ill of albuminuria, three years ago; during all this time, his wife took devoted care of him, in the midst of endless troubles and privations.

On November 16, 1883, a priest came, in the evening, to administer the last sacraments to the dying man. The wife sent him away because his appearance displeased her. Was this a beginning of the delirium? What is certain is, that during the night of the 16th–17th she became unmistakably insane. She threw herself on her husband's neck, embracing him, and crying out, "John is cured. I see the good God." From that moment she manifested a constantly increasing agitation: she stood at the windows singing hymns in a loud voice, broke the panes of glass, insulted those about her, and struck the physician who was at the bedside of the sick man. The police came to arrest her: she went out into the street and tried to prevent their entering the house, crying out to them: "I am Death; you shall not pass." It must be remarked here that for six days she had watched by her husband's bedside, and had eaten almost nothing. She has never been guilty of excess in drinking.

Taken to the prefecture of police she showed every sign of maniacal excitement; she talked incessantly, claimed to be the Virgin Mary, and that she could bring the dead to life again; finally she fell into a state of complete insomnia.

During this time a new complication arose in the family drama; Laura, the twin sister of Louise, became insane at almost the same time as the latter. Called to the bedside of her brother-in-law, she watched with him during one night, and it was in her presence that Louise had suddenly begun to rave. Two days later, the sick man died; Laura was present at the funeral. At the grave her mind began to wander; she was taken home, and almost immediately a

* Folie à deux, folie communiquée.

frenzied delirium broke out, four days after the attack of mental aberration which had caused the arrest of her sister. She was placed under the care of Dr. Bouchereau at the asylum of Saint Anne, where she still remains.

We will now take up separately the history of these two patients.

History of Louise.

Taken to the Clinique, Louise entered there November 17, 1883, and from the day following her admission, began to be more quiet. She inquired about her husband, and was told of his death, great care being taken in breaking the news to her.

December 11th, she appeared perfectly reasonable, and we took her to see her sister. At first she was very gentle and affectionate, but toward the end of the interview became gradually excited, so that it was necessary to take her back to her own quarters.

April 6th, being more calm, she was again taken to see her sister. The interview began affectionately, but after a few moments the patients became again agitated, so that it was necessary to separate them.

After this meeting, Louise remained in an excited condition for fifteen days, but finally became calm. At present she is at regular work, showing no delirious conceptions, and would appear cured to a superficial observer, but the experienced alienist easily sees that the fire still smolders under the ashes and only waits a favorable occasion to break forth again.

History of Laura.

During this time, Laura was under care of Dr. Bouchereau, having been placed there November 27, 1883, in a state of violent maniacal excitement. She broke the windows, thumped on the doors, delivered loud and incoherent harangues, in which was noticed a predominance of mystic and lofty ideas. She thought herself the Virgin Mary, the Queen of France, etc.; she constantly made the sign of the cross, went upon her knees, raised her eyes and lifted her arms in the attitude of prayer.

During the following weeks her agitation continued, her movements were sudden, her actions impulsive. She had sudden attacks of excitement, threatened violence, bit, struck and attacked the attendants, and committed many acts of an entirely impulsive nature; she used coarse and insulting language, sang for hours together, sometimes divested herself of her clothing, always went barefoot, refusing to use any kind of shoes. Sometimes she was found stretched out in the cell which she occupied, uttering incoherent soliloquies: sometimes she was found on her knees, praying to Jesus Christ; she declared that he often appeared to her, that she saw angels, etc.: while sometimes, on the contrary it would be serpents which appeared to her. She said on several occasions that attempts had been made to poison her.

The maniacal agitation and the impulsive phenomena lasted in all their strength until about the middle of February. From that time her actions became less wild, and while she still remained more or less excited, she was no longer violent. She was able to work at her sewing, but the incoherency of her ideas remained the same. She was subject to hallucinations of every sort; she heard strange noises and had all kinds of visions. Sometimes the heavens appeared to open before her, and she saw visions of physicians who spoke and made signs to her. At other times she saw women hanged or chopped into pieces.

April 6th. She was brought into the presence of her sister in the amphitheater of the Clinique: the two patients became mutually excited and it was necessary to separate them.

May 4th. Laura appeared calm; her memory was good, she even recalled some of the occurrences which took place at the time of her admission to Saint Anne's. All the same,

she was still far from being completely cured; her attitudes were always strange, her ideas disconnected and confused. She seemed to be much troubled about her twin sister, for whom she has always had a real affection.

June 15. Examined again, from a psychological point of view, the woman persists still in her delirious conceptions, and is the subject of many hallucinations.

In short, we here see twin sisters much alike, physically and morally, each of them attacked by a delirium with maniacal excitement, hallucinations of sight and of the other senses, with exalted and mystic ideas and general intellectual derangement under circumstances which have painfully affected both of them, though there is no ground whatever for supposing that the disease was communicated from the one to the other. Louise, in fact, was immediately separated from her sister after the insanity had shown itself.

It is thus evident that to the action of one identical cause, of an actual moral traumatism, must be attributed the outbreak of this delirium which appeared in the two sisters at an interval of four days: a profound similitude of cerebral organization must exist in them to produce such a reaction with so striking a parallelism.

Facts of this kind are not common. Some well authenticated examples, however, are on record; without pretending to have collected all of them, we will point out a few. Moreau of Tours reports a case of twins who were simultaneously attacked by the "delirium of persecution," and who were both placed under his care. They were so much alike physically, that they were often mistaken one for the other. Morally the resemblance was no less complete, and presented some remarkable peculiarities. Their dominant ideas were precisely the same. Both believed themselves the victims of imaginary persecutions, that the same enemies had sworn to destroy them both, and were employing the same means to that end. Both had hallucinations of hearing. Low spirited and morose, they never addressed any one, and only with great reluctance replied to questions put to them. They always kept aloof from other persons, nor did they hold conversation with each other.

An extremely curious fact and one which has frequently been verified by the attendants in their ward, and by the author himself, is this: from time to time, at very irregular intervals of from two to three or several months, without any apparent cause, and as a spontaneous effect of the disease, a very marked change took place in the condition of the two brothers.

Both of them about the same time, and often on the same day would come out of their habitual state of stupor and prostration, would utter the same complaints, and would come of their own accord to beg of the physician that they might be set at liberty. It is rather curious that they acted in precisely this same way even when they were at some distance from each other: the one being at Bicêtre, the other at Saint Anne's.

We here see the strictest parallelism of insanity between twin brothers, both exhibiting on the same day, and at the same hour identical exacerbations and identical transformations of their mental disorder. We shall see further on the very great importance of this fact.

Dr. Baume reported, twenty years ago, a very remarkable case of this kind, in the "Annales Médico-psychologiques." A pair of twin brothers, aged fifty, Martin and Francis, originally from La Creuse, worked as contractors upon the railroad from Quimper to Châteaulin. About January 15, 1863, three hundred francs were stolen from the two brothers, who had put their savings in a trunk.

During the night of January 23-24 Francis, who lived at Quimper, and Martin, who with his children lived at La Lorette (two leagues from Quimper), had at the same hour, 3 A.M., the same dream, each waking with a

start and crying out, "I have the robber, I have the robber, they are hurting my brother." Both were highly excited and acted in the same extravagant fashion, dancing and jumping about the floor. Martin threw himself upon his grandson, whom he took to be the robber, and would have strangled him had not his children interfered. His agitation became more and more violent; he complained of severe pains in the head and called himself *lost*. On the 24th January they had much trouble to keep him in his house, and about 4 P.M. he went out, closely followed by his son: he walked along the river-bank muttering incoherently, and tried to drown himself, but was prevented by the energetic resistance of his son. The police, on a warrant issued from a neighboring *mairie*, at 7 P.M. took the demented Martin, whose excitement had reached the extreme limits, to the asylum.

While Martin at once reached the utmost limit of an acute mania his twin brother Francis, quieted down on the morning of the 24th, spent the remainder of the day in seeking for the perpetrator of the robbery. As it chanced, about 6 P.M. he crossed the path of his brother, then being taken to the asylum, and struggling with the gendarmes. He exclaimed, "Ah! My God! My brother is lost: they take him for the robber, and will kill him." Francis then went to Lorette, to the ambulance of the railroad yard; complained of *violent pains in his head, and said he was lost;* uttered some incoherencies just as his brother had, and asked to be cared for. Soon afterwards, saying he was better, he went out, pretending he had some errands, and drowned himself in the same place where, unknown to him, Martin had attempted the same thing a few hours previously. He was rescued from the water, but did not survive.

Martin, who entered the asylum on the evening of the 24th, died there suddenly on the morning of the 27th. The autopsy made thirty hours after death showed a venous hemorrhage between the two layers of the arachnoid in the posterior half of the brain.

Thus perished two twin brothers. Their insanity, developed by one and the same cause, presented almost identical peculiarities, made its appearance at the same hour, and would have ended, without either knowing of the other's act, in the same form of suicide and at the same place, if one of them had not been prevented by a circumstance independent of his own will.

There are some other instances of insanity of twins in the records of mental medicine. I would specially mention the observations of Flintoff Mickle, Savage, Clifford Gill, and MacDowall.*

But examples of this kind are rare, and it has been with the greatest possible difficulty that I have collected a small number in the course of my researches: still it is probable that the instances would be more numerous if, in the greater number of cases, the twins had not been living in different places when the attack came on. As the whole interest of the observation rests on the parallelism between the two patients, it is easily seen that often cases of this kind have been lost to science. It is not improbable that, the attention of alienists once called to this point, the number of cases reported will rapidly increase, and that cases of this kind will cease to appear exceptional.

But even from the observations we now have we can draw some interesting conclusions.

If the insanity of twins were simply a "curiosity," something to be classed among "rare cases," science could have no concern with it; but such is certainly not the case.

It must first be remarked that there may be many very different degrees in the resemblance between twins. Sometimes it is very striking, but in the greater number of cases it is less

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* *Journal of Mental Science*, Jan., 1883, p. 539; April, 1884, p. 67; July, 1884, p. 262.

strongly marked; in fact, twins are frequently seen between whom there is as much difference as between the ordinary members of one family.

Now in all the cases of insanity in twins which we have seen, there has been noticed the strongest resemblance physically and morally between the two subjects. Not only the features of the face but the intellectual and moral qualities of the patients coincide in a most remarkable manner; and as in all the cases mentioned, the form of the delirium was essentially the same, while the date of the attack corresponded exactly in both patients, we are justified in believing that in these mental perturbations we have evidence of a strong likeness between the two in their cerebral organization, and of physiological functions which proceed in parallel lines.

Sometimes, as we have seen in the case mentioned by Moreau, the attacks of insanity break out at the same instant in the two patients, and there are intervals of lucidity which both enjoy simultaneously.

Though in some of these patients hereditary insanity can be traced, there are others whose genealogy seems to be perfectly irreproachable so far as mental alienation is concerned. What we have to do with therefore is a mental and moral affinity which transcends the ordinary limits of consanguinity.

No doubt it is very common to see the same kind of insanity developed in several brothers and sisters, who are born of the same parents, and belong to the same family; but, heredity is almost always found at the root of these diseased manifestations, and one should not be surprised to see the same fruits on different branches of the same tree.

Twins are brothers who are more closely united than ordinary ones. Born at the same time, conceived under the same conditions, they have been subject to the same influences during the period of gestation, and there results in some cases, if not in all, a strong likeness in the cerebral organization and the physical health. Such is the only admissible origin for those pathological phenomena which are manifested at the same instant, follow in both individuals an absolutely identical path, and are characterized by the same phases, by the same mental derangements. There are some accessory details which complete the picture and give more force to our conclusions. The proverbial affection and sympathy of twins toward each other are found in the highest degree in the subjects of these remarks: the influence which they exercise reciprocally on one another is most evident from a moral point of view, and almost always, during the course of the disease, the meeting of the two patients has on both patients a very injurious effect.

So then, in the phenomena which we have just analyzed, we cannot help seeing a very clear proof of the profound identity of the two organizations, which react the one upon the other, with so great an intensity.

This pathological solidarity may be seen in other disorders besides mental alienation. Trousseau gives a very interesting example: "I once had," he says, "for patients two twin brothers, who were so remarkably alike that it was impossible for me to distinguish them except when they were side by side. This physical resemblance extended still further: their pathological likeness, if I may use the expression, was still more extraordinary. For instance, one of them, whom I saw at the Néothermes in Paris, ill with rheumatic ophthalmia, said to me: 'At this very instant my brother must have an ophthalmia like mine.' As I scouted this idea, he showed me, some days afterward, a letter which he had just received from his brother, then at Vienne, and who wrote to this effect: 'I have my ophthalmia, you should have yours.' However singular this may appear, the fact is none the less true: I have it not on hearsay; I saw it for myself, and I have seen other

cases like it in my practice. But these twins were also asthmatical to an alarming degree. Originally from Marseilles, they had never been able to live in that town, where their business often required their presence, without suffering from an attack of asthma. At Paris they never suffered from it. Indeed they needed only to reach Toulon to be freed from the complaint. They were constantly traveling, and in different countries, on their business affairs, and they noticed that certain localities were unfavorable for them, while in others they were free from every symptom of asthma."

To sum up our conclusions, I would say that in this matter heredity is supreme, and that the insanity of twins is simply the highest and most striking manifestation of that force which fashions at its will all living matter, and which governs the entire series of organized beings.

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